



Geo-soundings

NEWSLETTER – MARCH 2010

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WELCOME

Welcome to our first edition of *Geosoundings* for 2010. This edition acknowledges the achievements of our 2009 graduated students, reports on recent awards and grants, publications and in this edition provides some news on a recently undertaken research project. We hope you enjoy the contents and look forward to our future editions.

ENROLMENTS 2010

Total enrolments for 2010 are:

BSc (Geophysics) Undergraduate	76
BSc (Geophysics) Honours	21
BSc (Geology/Geophysics)	25
Graduate Diploma in Geophysics	9
MSc (Geophysics) – Coursework	7
MPhil (Geophysics) – Research	1
PhD – Research	19

2009 Graduates were:

Doctor of Philosophy

Marcos H. Grochau Christopher B. Harrison
Florian Karpfinger Julianna J. Toms

Doctor of Philosophy

Piyaphong Chenrai

Master of Science (Geophysics) by Coursework

Faisal A. Alonaizi Lestarini Hariono
Umair Rabnawaz

Eleven Indonesian students also completed the Masters course under an Articulation Agreement between Curtin and ITB Indonesia:

Adrinal Ilyas Anton Darmawan
Arief Wicaksono Budi Santoso Suryopranoto
Devri Agustianto Firzany Ridwan
Helmi Indrajaya Oki Irawan Agung Sugiri
Aditya Abdurrahman Juanda Yuda Faisal Yushendri
I Komang Andika Aris Permana

Graduate Diploma in Geophysics

Badr A.H. Alulaiw Dodi R. Galih

BSc (Geophysics) Honours

Ahmad M. AlShobeili Faisal K. AlFuhaid
Mohammed A. AlMaghlouth Abdulrahman M. AlMulla
Adam Gangemi Hussam M. Momenah
David Stannard Ismail Yavuz

BSc (Geophysics)(CUT)/BSc (Comp Sci)(UWA)

William Tran

BSc (Geophysics)

Amalularifin H. Abd Rahman Haitam Khalid I Abdalal
Jonathon C. Akers Omar A.A. Alahmady
Abdullah I.K Almusaeed Ali A. Alnasser
David Botes Christopher Botman
Jesse-Lee Dimech Aaron Dobrich
Lisa Gavin Jonathan Gorham
Jarrad Grahame Nataya Kusumaputri
Danny Li Thomas Paten
Matthew Pau Ali A.A Shaiban
Sean Simpson Jeremy Smith
Michael Steel Matthew Wheeler-Carver

Student Committee Members

2010 KEGS Office Bearers (Member of the SEG-Student Chapter)

Following a meeting of the Geophysics student body, held mid-March 2010, elections were held to elect the 2010 KEGS Committee.

The results are as follows:

PRESIDENT: Reece Cunnold

VICE-PRESIDENT: Nicholas Leong

SECRETARY: Michelle Byett

TREASURER: Jason Valuri

STUDENT REPS (Years 1-4):

Nathan Tabain, Stephanie Tressler and Thomas Paten.

GRANTS/AWARDS/HONOURS

Congratulations to **Dr Maxim Lebedev**, who has been awarded a grant of 17K for 1 month with Total Marine Technology Ltd to conduct a feasibility study for: *Experimental and Theoretical Investigations of the principles of the density measurements using ultrasonic*

technique Tool for Remote Measurement of the Density of Cement Slurry.

MERIWA Scholarship: Has been awarded to **Mr. Andrew Greenwood** who is currently entering his third year of PhD studies in the Department of Exploration Geophysics at Curtin University. Andrew's thesis topic is "Application of Vertical Seismic Profiling for Characterisation of Hard Rock", which is being supervised by Associate Professor Milovan Urosevic.

JOURNAL PUBLICATION

Urosevic, M., Pevzner, R., Kepic, A. and Wisman, P. *Time-lapse seismic monitoring of CO₂ injection into a depleted gas reservoir – Naylor Field, Australia.* The Leading Edge, No. 29(2), February 2010.

Al-Jabri, J. and Urosevic, M. *Assessing the repeatability of reflection seismic data in the presence of complex near-surface conditions-CO₂CRC Otway Project, Victoria, Australia.* Exploration Geophysics, No. 41, 24-30, 2010.

CONFERENCE PRESENTATIONS

Lebedev, M., Clennell, B., Pervukhina, M., Shulakova, V., Müller, T. and **B Gurevich.** *Direct observation of patchy fluid distribution: Laboratory study,* Presented at the International Symposium on Prediction and Simulation Methods for Geohazard Mitigation, 2009, Kyoto, Japan.

Nadri, D., Bona, A. and Brajanovski, M. *Estimation of elasticity tensor from the inversion of travel times in spherical shale samples.* Presented at the CPS/SEG International Geophysical Conference & Exposition, Beijing, China, 2009.

STAFF NEWS

Mrs Rusta DuPlooy resigned as Research Secretary in March 2010. We acknowledge and thank Rusta for her work and support to the Department. Rusta has decided to work with her husband in his new small business venture. We wish them both well.

Ms Tanya Wallace has recently been appointed as the new Research Secretary and we all look forward to working with Tanya over the coming years.

RESEARCH PROJECTS

New Zealand Ironsand Exploration and Resource Definition Using Ground Penetrating Radar (GPR)

A BSc Geophysics Honours research project was completed in 2009 by **David Stannard** to test the viability of low frequency GPR for delineating ironsand ore zones in recently discovered dune deposits that occur along the west coast of New Zealand's North Island. The project was sponsored by Sinosteel Australia PL and carried out through the Centre of Excellence for High Definition Geophysics (CHDG) in the Department of Exploration Geophysics. The project supervisor was **Associate Professor Jayson Meyers** in collaboration with **Associate Professor Roman Pevzner.**

Ironsand is currently being mined by BlueScope Steel at the Waikato Heads and Taharoa mines, where titanomagnetite is extracted from the ironsand deposits to

make a magnetic concentrate. About 3 to 4 million tons of concentrate are produced annually, where half is used locally to produce steel products and the rest is exported to specialized steel mills adapted to the fine grain size and additional metals of titanium and vanadium.

Sinosteel Australia recently drilled aeromagnetic anomalies near the Aotea headland, and discovered a series of ironsand deposits perched on elevated volcanic ash and lava deposits associated with the Karioi volcanic zone. The depositional pattern of these dunes is rather complex, and the modern topography has no relationship to the thickness of the ironsands due to deposition on an undulating palaeosurface and geologically recent erosion.

While the drilling by Sinosteel is closely spaced on a nominal 100 by 100 metre pattern, the internal geometry and thickness of the high grade sand layers is quite variable over short distances. Therefore, GPR was tried at several prospect areas to image reflections within the ironsand deposits. Experimentation was carried out on test lines to determine the best antennae configuration, digital sampling parameters and survey methods, before large areas were surveyed using grid patterns. High end data processing was carried out in the laboratory using software designed for oil and gas exploration by seismic methods.

The results were quite outstanding in most of the survey lines, and the GPR data provided the type of information that Sinosteel was after to better understand the depositional history of the dunes, continuity of high grade ironsand packages between boreholes, and provide very detailed geological information for future mine planning. David's presentation on his research was voted the best presentation at the 2009 ASEG Student Night. The data processing and interpretation is continuing beyond the completion of the Honours project in order to assist Sinosteel with improving confidence in their resource models and bring them to a higher JORC category.



UPCOMING EVENTS

S A G E E P 2010 - Keystone, Colorado 11-15 April

AAPG Annual Convention & Exhibition - New Orleans, USA 11-14 April

EAGE Shales Workshop - Nice, France 26-28 April

EAGE Int'l Conference on Geoinformatics - Kiev, Ukraine 11-14 May

EAGE Conference & Exhibition - Barcelona, Spain 14-17 June