



Geo-soundings

NEWSLETTER - APRIL- JUNE 1996

Editor: Ms Rhonda Green

A/Prof Norm Uren
Head, Department of Exploration Geophysics

Enquiries: Telephone (09) 351 3565/3408

Email enq@geophy.curtin.edu.au

Fax (09) 351 3407

<http://www.curtin.edu.au/curtin/dept/geophy/>

POST DOCTORAL FELLOWSHIPS

Commencing in 1997, Curtin will be offering Post-Doctoral Fellowships. Please note the following deadlines:

Expressions of Interest: 31 July 1996
Lodgement of Application: 30 September 1996

For further information contact:
A/Prof Norm Uren
Head, Department of Exploration Geophysics
Curtin University of Technology
GPO BOX U1987
PERTH WA 6001

Full details can be accessed by viewing the Curtin R&D web page:

<http://www.curtin.edu.au/curtin/dept/research/resinfo/grants/cpdf.htm>

STAFF

Norm Uren received his silver SEG membership certificate (25 years membership) on Wednesday 15 May 1996 at the WA ASEG Branch Meeting.

John McDonald and Abolghasem Kamkar Rouhani were the speakers at the WA ASEG Technical Meeting on Wednesday 15 May 1996.

Ping Zhao has accepted a contract position at AGSO in Canberra.

Mr Vinh Ngo has resigned from his position as Computer Systems Manager and will commence employment with Commerce Australia. We wish him well with his future career.

FIELD TRIPS

Patrick Boss recently travelled to Antarctica to search for the elusive "red weasel". This tracked vehicle was abandoned 150 km south of Mawson whilst on a 1953 Antarctic traverse to the southern Prince Charles Mountains. World Geoscience Corporation loaned the helimag unit used for the search. It is hoped that the weasel will be restored from its icy grave and put on display as part of ANARE's Jubilee exhibition.

Brian Evans and Milovan Urosevic spent a week underground during April at the Scuddles Zinc mine, east of Geraldton. The project, coordinated by the Centre for Mining and Equipment Technology (Brisbane), was to observe if cross-wall tomography could be achieved to image contacts between dykes, faults and fractures underground. 3-C geophones were cemented on the walls and a 14 lb hammer was the source at the 370 m level. The data quality appears excellent, and the Curtin group's next step is to try to find reflections, while CMTE is performing the tomographic inversion.

The coal seismic group is expected to visit the BHP operated Goonyella mine (Queensland) in August to perform a reversed VSP and short 2-D seismic line over an area of known faulting and dykes. The group is developing new methods to image intrusives, and the expectation is that the survey will provide the needed field data. On completion of the work, the group will perform a research survey over an area which has potential to be a CBM target.

COURSE CHANGES

The Geophysics degree has been modified, increasing the amount of exploration geophysics in the third year. This makes it by far the strongest academic geophysics degree in Australia. The new changes will be implemented in 1997. In all there are 630 hours of geophysics classes in the three years of the pass degree. The Honours course and the Post Graduate Diploma will be upgraded as a result, commencing in 1998.

EQUIPMENT

Will Verhoeff has donated his 3-D Hilbert Transformer Magnetic Map Analysis Program to Stephen W Reford of paterson, Grant and Watson Limited. Other interested parties are also welcome to request copies.

Aerodata has kindly donated some seismic recording equipment, cables and geophones to the Department for its use.

Hampson-Russell Software services has also donated its STRATA package to the Department.

EXPOS

The Department exhibited at the Bunbury Expo on Friday 3rd and Saturday 4th May 1996. Our thanks go to Bruce Hartley, Vern Wilson, Jon and Donna Cocker and Dominic Howman who attended the Expo and organised a display and competition. The winner of the competition to identify the site for a mine was:

Scott Hollis
Newton Moore Senior High School
Bunbury

PUBLICATIONS

Waluyo's paper entitled *Shear Wave Amplitudes for Seismic Anisotropic Determination* has been accepted for presentation at the Western Pacific Geophysics Meeting of the American Geophysical Union (AGU) in Brisbane 23-27 July 1996.

Patrick Okoye will have a paper published in the August issue of Geophysics entitled *Inversion Technique for Recovering the Elastic Constants of Transversely Isotropic Materials*.

Umesh Das has had the following papers published:

Multiseperation, multisystem electromagnetic depth sounding - an extension for unification: Geophysics.

Direct current electrical potentials in an arbitrarily anisotropic medium: Exploration Geophysics.

Analytical solution for direct current electrical potentials in an arbitrarily anisotropic half-space: Journal of Applied Geophysics.

Brian Evans presented a paper to the ASEG Queensland branch titled: *The use of 3-D Seismic using Sandbox Models, in Exploration.*

B J Evans and J A McDonald have had a short note published in the May issue of the Society of Petroleum Engineers, SPENews: *3-D and 4-D Seismic for Improved Reservoir Delineation.*

The following paper is to be presented at the SE Asia Pacific Oil and Gas Conference, 28-31 October:
JA McDonald, BJ Evans, DA Ebrom and KK Sekharan, *Improving Reservoir Development with 3-D Seismic Data.*

BJ Evans' and M Urosevic's paper: *Low-cost VSP and 3-D Seismic Methods Assist Longwall Mine Planning.* has been accepted for presentation at the Symposium on Geology in Longwall Mining, UNSW, 12-13 November.

CONFERENCES

Jakarta '96 International Geophysical Conference & Exposition

Five papers were presented at the Conference held 27 April to 2 May 1996. The papers were:

Waluyo, NF Uren, JA McDonald

Reflection amplitudes in transversely isotropic media with tilted axes of symmetry.

DA Ebrom, JA McDonald, SA Markley

Physical Model Test of Reconstruction of Spatially Undersampled 3D Wavefields.

A Kamkar Rouhani, UC Das

Surface and Borehole Resistivity Measurements using the Two-electrode System in a Layered Earth.

DH Sherlock, BJ Evans, LB Harris

3-D Seismic Data of Sandbox Models.

Patrick N Okoye, NF Uren

Influence of Anisotropy on Stacking Velocity and Depth Conversion.

EAGE Conference in Amsterdam 3-7 June

Norm Uren, Vern Wilson, Brett Harris and Abolghasem Kamkar Rouhani attended and presented the following papers:

A Kamkar Rouhani, U Das

A New Processing Technique in Reducing (sub) Horizontal Layering Effects in 3D Resistivity Measurements.

BD Harris, U Das

Calculation of CSEM (Controlled Source Electromagnetic) Apparent Resistivity.

VC Wilson

Use of Electromagnetics to Map Hydrogeological Parameters in Salinised Land, Western Australia.

1996 APPEA Conference in Darwin 16-19 June

Brian Evans and Don Sherlock attended this Conference and Don presented a paper as follows:

Don Sherlock, B Evans, CC Ford

The Seismic Expression of Three Dimensional Sand-box Models.

OTHER NEWS

Chris Walton (one of our 1996 Honours students) has received the Neville Stanley Scholarship from the Department of Commerce & Trade.

Brian Evans recently spent 3 weeks at the Brisbane offices of BHP Coal, working with their coal-bed methane (CBM) Review Group. Brian had the task of re-interpreting all previous seismic records in the new BHP permit ATP 364P. The review will make recommendations on the future potential of the permit for CBM exploration and production.

The Department will be organising a booth at the forthcoming SEG Conference in Denver, Colorado.