

Geo-soundings

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DISTINGUISHED LECTURE SERIES

On Thursday August 29 the Department acted as the WA host for the 1996 Esso Distinguished Lecture on *Essentials of Reservoir Geology for Improved Oil Recovery* which was held at the WACA, Boundary Room. There were 53 attendees from Industry and Curtin. Our thanks to Deirdre Hollingsworth for her great effort in organising this function.

The lecturer was Prof Howard D Johnson who is the Enterprise Oil Professor of Petroleum Geology in the Department of Geology at Imperial College. He is the Director of the MSc course in Petroleum Geoscience, and is responsible for teaching reservoir/development geology on both the MSc Petroleum Geoscience and the MSc Petroleum Engineering courses. He spent 15 years with Royal Dutch/Shell working in exploration, production (petroleum engineering) and research. During this time he was involved with the geological characterisation and modelling of sandstone reservoirs, geological aspects of field appraisal and development, and exploration/prospect evaluation. His current research interests are in the areas of clastic depositional systems, sequence stratigraphy and reservoir characterisation, particularly in relation to the improved description of, and enhanced recovery from hydrocarbon-bearing sandstone reservoirs.

MMET PROGRAM

Paul Wilkes organised a series of courses as part of the Masters in Mineral Exploration Technologies course during August. Details are as follows:

Gravity & Magnetic Exploration (MMET 603) held 12-16 August in the Seminar Room, Geophysics Department. Presenters were Dr Duncan Cowan (Consultant), Dr David Isles (Consultant), Paul Wilkes (Curtin), Wayne Jones (Curtin)

Electromagnetic Methods in Mineral Exploration (MMET 606) held 19-23 August at the Parkes International Motor Inn, Parkes, NSW. Presented by Jim Macnae (Lamontagne Geophysics, Macquarie University) and Mike Asten (BHP Research)

Resistivity & Induced Polarization (MMET 604) held 26-30 August also in Parkes, NSW. Presented by Dr Ted Tyne (Geoterrex) and Dr John Bishop (Mitre Geophysics).

APCRC FIVE YEAR REVIEW

As part of the five year review, the APCRC research and education performance was reviewed by Professor Jean-Claude Roegiers from the University of Oklahoma, Professor George Keller (retired former Head of the Colorado School of Mines), and Professor Derek Chan from the University of Melbourne. One interesting statistic from the review was that of the 150 published scientific papers and conference papers in all areas of the APCRC research programs in 1995, 40 had research students as first authors. As research declines in exploration companies, the research role of the APCRC becomes more important.

CONFERENCES

John McDonald attended a Mining & Petroleum seminar in Port Moresby on 12-13 August organised by IDP Australia. Representatives from several Australian Universities and TAFE colleges made presentations to representatives of industry, government and higher education. Tours were also made of the University of Papua New Guinea and Port Moresby Technical College.

John McDonald also took part in a visit to Kuala Lumpur underwritten by the WA Department of Commerce & Trade. Presentations were made to Petronas representatives from the Research Labs and Exploration Departments. These were followed by an explanation of the research structure of Petronas and a guided tour of Petronas Research & Scientific Services.

The following paper was presented at the **Western Pacific Geophysics Meeting - Brisbane 23-27 July 1996:**

Waluyo*, McDonald, J.A., and Uren, N.F., 1996, *Shear wave amplitudes for seismic anisotropic parameter determination*

SHORT COURSES

A short course, **Evolving seismic technology for mining- a course for geologists and engineers**, is to be presented

after the 'Geology in Longwall Mining Symposium' on 14th November at UNSW, by Brian Evans. The following paper will be presented at the conference:

B.J. Evans, J. Cocker, and M. Urosevic: *Recording seismic reflections beneath high-velocity layers.*

EQUIPMENT

An additional 80 shear-wave geophones have been purchased to improve our capability to record shear data.

The coal research group is developing a new input filter for use with 24-bit recording systems. The intention is that the filter will allow the recording of surface and underground seismic data during times of intense mining operation noise.

GRANTS

Patrick Okoye has just won a MERIWA grant for a two year project on anisotropic Kirchhoff migration. The grant is valued at \$159,000.

Brian Evans has received a grant from BHPAC for a one year project on coal bed methane. The project is valued at \$209,000.

OTHER NEWS

The Department will be organising a booth at the forthcoming SEG Conference in Denver, Colorado. **Details of the papers being presented at SEG by Curtin personnel will be on the booth.**

This year a record number of BSc Hons. students in mineral exploration geophysics are expected to graduate. Their projects form an integral part of the research program of the CRCAMET.

Indrajit Ghosh Roy was the speaker at the WA ASEG Technical Meeting on Wednesday 19 June 1996.

We are pleased to have provided Dr Lindsay Thomas of Melbourne University (a member of VIEPS) with field seismic data to assist him with teaching seismic processing in their Geophysics program.

APCRC FIELD TRIPS

Two walk-away RVSPs and two 1 km seismic lines were recently recorded at Goonyella No.2 mine for BHP Australia Coal. The results of the work provided a new interpretation of geology which was faulted, and had undergone thrusting. A feature of the work was that one RVSP imaged a fracture zone which was not clear on the surface seismic data.

The first field trial of a down-hole air-gun source was performed by the coal research group during 23-24th August at a BHP site in the Bowen Basin. The aim of the trial was to test the use of such a source to assist crosshole and VSP imaging beneath high velocity layers, such as basalts. Data are currently being analysed.

Due to the extensive coal-bed methane and mine research work expected to be performed by the coal group for BHPAC, some of our seismic field equipment is presently being stored in Moranbah on a semi-permanent basis.

VISITORS

Professor Dan Loewenthal visited the department for about 25 days in August. Dan has long been working on joint projects with Curtin Geophysics. In his time here Norm Uren and John McDonald worked with Dan in developing a proposal for research which will be a unique method for dealing with multiples. It is hoped that the project will be carried out in cooperation with the Allied Geophysical Laboratories at the University of Houston and with industry.

PUBLICATIONS

Ping Li has had a paper accepted in the journal **Mathematical and Computer Modelling** entitled *A New Analytical Solution for Laplacian Porous-Media Flow with Arbitrary Boundary Shapes and Conditions*

John McDonald and Brian Evans are to present a paper at the forthcoming Society of Petroleum Engineers Conference in Adelaide titled *Improving Reservoir Development with 3-D Seismic Data.*

EXPOS

Our thanks go to Brian Evans, Jon Cocker and Dominic Howman for participating in the following expos:

Kelmscott SHS and Roleystone DHS Careers Evening held on 3 July (Dominic).

Combined Schools Careers Expo 1996 held on 31 July (Brian and Jon).

Dominic also organised the Geophysics section of the Curtin Careers Evening held 17-18 July.

Murray Hill hosted a tour of our Department on Friday 23 August for students from Bunbury Cathedral Grammar School

Brian and Dominic organised the Geophysics section of the Schools Information Program. Helena College and City Beach SHS were the schools involved.

HONOURS FIELD TRIPS ON MINERAL PROJECTS

During May to July, fieldwork for eight honours projects in Mineral Geophysics was carried out in a variety of different areas across WA ranging from the Tanami Desert to Kingston, Leonora, Leinster and Meekatharra. This very important activity gives the students valuable experience in running field projects and also the opportunity for second and third year students to get field experience and participate in honours projects. Thanks to the following companies for their cooperation in these projects:

CRA, Glengarry Resources, Astro Mining, North Exploration, Plutonic, and Wiluna Gold Mine.

Some projects were also part of CRCAMET research and thanks also go to Dr Tim Munday (CSIRO, Floreat Park) for his assistance.

PRIZE WINNERS

The Australasian Institute of Mining and Metallurgy has announced their Bursary Fund prize winners for 1996. Eleven bursaries were awarded to students attending WA

universities, seven to students of Curtin University (Bentley and Kalgoorlie). The bursaries were awarded for academic achievement in 1995.

We congratulate all bursary winners and are especially proud of the three recipients from our Department:

Brett Lantzke (current Honours student)

Paul McMillen (current third year student)

Troy Thompson (current second year student)
