

ASEG Federal Executive 2013–14

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Stewart Greenhalgh receives an EAGE award

At the EAGE 2013 Conference in June, Stewart Greenhalgh, a long-standing ASEG member and former professor of the University of Adelaide, was awarded this year's Ludger Mintrop Award. The Ludger Mintrop Award is presented to the author(s) of the best paper published in *Near Surface Geophysics* in the calendar year preceding the award. His award-winning paper is 'Velocity and attenuation dispersion relations for the effective Biot model: total-field formulation', published in *Near Surface Geophysics*, volume 10, issue 3, June 2012, pp. 197–206, co-authored by his students Xu Liu and Bing Zhou.

The citation states: In this paper, two approaches – the host phase fields and the total fields – were applied to formulate effective Biot governing equations from an original double-porosity dual-permeability model. The previously published host-phase formulation assumes that the macroscopic fluid flux of the included phase is zero, so that this term can be ignored in the

equation governing conservation of momentum. The total-field formulation developed here has no such limiting assumption and gives rise to new and more general governing equations that cover the host-field approach as a special case. By computing the phase velocity and attenuation-dispersion curves of sample rocks, the authors show that the two sets of governing equations are consistent at very low frequency but for larger volume fractions of the included phase, there is a significantly increasing discrepancy in the slow P-wave as frequency increases. The slow P-wave, whilst difficult to observe, does exist and must be considered when computing the frequency-dependent reflection coefficients at an interface with a porous medium. (<http://www.eage.org/index.php?evp=1966&ActiveMenu=167&Opendivs=s109,s128>)

On 10 June he received the award from HRH Prince Andrew, Duke of York, at the ExCeL Conference Centre, London.



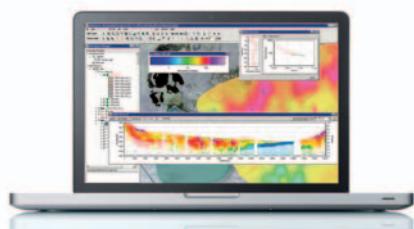
Stewart Greenhalgh receiving Ludger Mintrop Award from HRH Prince Andrew, Duke of York.

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New South Wales

In May, Barry Smith from Bridgeport Energy spoke about the Inland Oil Field. Barry described the specialised 3D seismic processing and neural network seismic interpretation, which had yielded new maps that had improved the understanding of the reservoir architecture and helped to identify areas where oil was potentially unswept by the existing inland wells. Barry outlined how these new maps were then used to determine the location of three new development wells and that the wells were put on pump this year.

In June, David Isles, the 2013 SEG Pacific South Honorary Lecturer, spoke on Aeromagnetism: a driver for discovery and development of earth resources. David emphasised how aeromagnetic surveys are very commonly under interpreted. He described and discussed the fundamentals of robust aeromagnetic interpretation using a number of case studies. The talk was enjoyed by all and much discussion followed the presentation.

An invitation to attend NSW Branch meetings is extended to interstate and international visitors who happen to be in town at that time. Meetings are held on

the third Wednesday of each month from 5:30 pm at the Rugby Club in the Sydney CBD. Meeting notices, addresses and relevant contact details can be found at the NSW Branch website.

Mark Lackie

Queensland

Brisbane Branch has several events coming up in the next couple of months. July kicks off with our annual Zoeppritz evening on the 19th with a student night on the 23rd. After the ASEG conference on Friday 16 August we will also be hosting the SEG DISC 'Making a difference with 4D: practical applications of time-lapse seismic data' presented by David Johnson. This is followed by the SEG DL Carl Regone presenting 'Acquisition modelling: expect the unexpected' on the 2 September. An exciting calendar for Brisbane when you add in the trip to Melbourne for the ASEG conference!

Brisbane Branch is always on the lookout for presenters to fill the 2013 programme. We invite anybody willing to present to please contact Fiona Duncan (fiona.duncan@bg-group.com) and extend this invitation to those passing through Brisbane.

Fiona Duncan

South Australia/Northern Territory

Recent presentations to the SA membership have been, as ever, well attended and received. On 9 May, Koya Suto of Terra Australis Geophysics Pty Ltd presented 'Multichannel analysis of surface wave (MASW): a tool for investigation of ground competence'. It was also a great opportunity for Koya, the current ASEG President to meet some of the local members.

The June Technical meeting was held on 4 June, when Tim Munday, of CSIRO presented 'Regional scale AEM surveys: new insights into an area prospective for VMS Cu-Au mineralisation: Palaeo-Proterozoic Bryah Basin, Western Australia'.

Technical talks are held monthly, usually on a Tuesday after work at the Coopers Alehouse and students and any other interested parties are always welcome. We are always on the lookout for interesting talks, so if you are willing to present, please contact someone from our branch.

Luke Gardiner

Calendar of events

Date	Event	Presenter	Time	Venue
Western Australia: Anne Tomlinson				
19 August	SEG DL 2013: Acquisition modelling: expect the unexpected	Carl Regone, Houston	17:30	Seminar Room 1, Technology Park Function Centre, Bentley
26 August	Geoscience Careers Night	Professor Peter Quinn, UWA and David Flanagan, Atlas Iron	16:00–17:30 (high school) 18:00–19:30 (university)	Gala Room, Technology Park Function Centre, Bentley
11 September	Tech Night: Seismics for mineral exploration	Dr Milovan Urosevic, Curtin University, Perth	17:30	City West Function Centre, West Perth
9 October	Tech Night: Rock physics/Pore elasticity	Dr Tobias Muller, CSIRO, Perth	17:30	City West Function Centre, West Perth
13 November	Student Presentation and ASEG WA Awards Night	TBC	17:30	City West Function Centre, West Perth
11 December	AGM and Christmas Party		17:30	TBC

TBC, to be confirmed.

ASEG one-day short course: interpreting seismic amplitudes

Instructor

Dr Dennis Cooke

Intended audience

Oil and gas prospect generators who wish to interpret lithology and reservoir fluids from seismic amplitudes and amplitude-versus-offset (AVO) attributes.

Topics include:

- Acoustic impedance and impedance contrasts;
- Reflection coefficients and the convolutional model;
- Polarity conventions;
- Thin beds and seismic tuning;
- Reservoir porosity and seismic amplitude;
- Soft-over-hard reservoirs (high amplitudes are good!) versus hard-over-soft reservoirs (high amplitudes might be bad!);
- Amplitude and phase spectra of seismic source wavelets;
- Enhancing frequency content in processing;
- Expanding frequency content in acquisition;

- Optimising colour display of seismic amplitudes;
- How oil and gas replacing water changes reservoir impedance and Poisson's ratio;
- Amplitude maps from 3D surveys and the importance of conformance between amplitudes and structure;
- Interpreting reflectivities versus interpreting impedances;
- Post-stack seismic inversion: inverting for acoustic impedance;
 - Phase rotation/run-sum inversion;
 - Model-based inversion;
- Relative versus absolute impedances;
- Pre-stack seismic inversion: inverting for acoustic impedance and Poisson's ratio (or other similar properties);
- Making sense out of 'competing' AVO techniques;
 - Gradient and intercept/fluid and lithology factors/AI and PR/AI and SI/ $\lambda\rho$ and $\mu\rho$ /elastic impedance/extend elastic impedance;
- Two term and three term AVO;
- Depth trends for acoustic impedance and Poisson's ratio.

This course aspires to be as non-mathematical as possible by using figures rather than equations to explain concepts. Instruction includes numerous examples


of modern 3D seismic data. Includes review of basic concepts and discussion of advanced concepts of seismic inversion and AVO.

Biography

Dr Dennis Cooke has over 25 years experience in the oil and gas industry. He has worked in research, seismic acquisition, technical service provision and as an interpreter doing field development and new ventures. His experience includes interpretation projects in North America, Gulf of Mexico, Indonesia and SE Asia, Alaska, Australia and New Zealand. He currently divides his time between consulting and the University of Adelaide, Australian School of Petroleum where he is researching unconventional reservoirs. He is a past president of the Australian Society of Exploration Geophysicists and is currently a vice president of the Society of Exploration Geophysicists.



Booking enquiries

Please contact Wendy Watkins for further information:
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ASEG announces new award in memory of Shanti Rajagopalan



The ASEG Federal Executive is pleased to announce a new ASEG award to be named the Shanti Rajagopalan Memorial Award in memory of the late Dr Shanti Rajagopalan.

The award is to be presented at each ASEG Conference for the best paper published by a student in *Exploration Geophysics* in the period prior to each ASEG Conference. If the selected paper is co-authored, the award and prize will be shared by all authors who are Student Members of the ASEG; co-authors who are Active or Associate Members, or non-members, are not eligible to share the prize.

Selection will be based on criteria determined by the Publications Committee and a panel formed by the Publications Chainman will have the responsibility to select a suitable recipient and forward the nomination to the Federal Executive prior to each ASEG Conference.

The successful recipient will receive a framed certificate plus a cash prize of \$1000, to be presented at the ASEG Conference. The inaugural Shanti Rajagopalan Memorial Award will be presented at the ASEG Melbourne Conference 11–14 August 2013.

Naming of the Award

The award is named the Shanti Rajagopalan Memorial Award in memory of the late Dr Shanti Rajagopalan, who passed away in 2010 aged 49 after the recurrence of an illness. Shanti was one of the best known and respected members of the ASEG and was well known within the geophysical profession for her outstanding contributions and service to the profession and the ASEG. She was also one of the most all round talented members whether it be for her technical capabilities, her bursts of originality or the bubbling personality and sense of fun that delighted all who knew her.

Shanti obtained her BSc with 1st Class Honours from the University of Madras, her MSc from the Centre of Exploration Geophysics, Osmania University, Hyderabad, and her PhD from the University of Adelaide in South Australia. Her wide professional experience included work as a visiting research Fellow at the prestigious National Geophysical Research Institute in Hyderabad, she was a lecturer at the University of Adelaide, she worked for a short while with the airborne survey unit of the Bureau of Mineral Resources (BMR; now Geoscience Australia), she spent four years working for CRA/Rio Tinto in exploration geophysics working in Australia and South East Asia, and then as an independent consultant with her own company Earth Bytes, she was a member of the BHP Billiton team that interpreted the results obtained by the revolutionary Falcon airborne gravity gradiometer unit. Wherever she worked she left her mark of fresh ideas and improved processing and interpretation procedures.

Shanti also became very active in ASEG affairs and was a major contributor to the advancement of the Society in many ways. She was President of the Victorian branch in 2001 and 2002 and was involved in organising the first and so far only ASEG conference held in Hobart. She was an Associate Editor of *Geophysics* from 1998 to 2009 and the Managing Editor of *Exploration Geophysics* in 2000 and 2001, a role that she reluctantly had to put aside due to increasing family and work commitments as a consultant.

It is particularly noteworthy in the context of this new award that Shanti came to the attention of many ASEG members in 1987 when, as a student member, she was awarded the inaugural Laric Hawkins Award for the most innovative use of a geophysical technique from a paper presented at the ASEG Conference, for her paper: ‘The use of “automatic gain control” to display vertical magnetic gradient data’. The method is widely used today and is regarded by many as a standard procedure used in processing data.

Such was Shanti and her contribution to geophysics in Australia and in India, her loss to the science as a source of fresh ideas will be lamented, but she will not be forgotten by those who met her and were inspired by her example. It is fitting that an award to encourage technical excellence by our Student Members should be named in honour of Shanti Rajagopalan, whose wonderful career and significant contribution to our profession can be attributed in part to her initial contribution as a student member at an ASEG conference.