

Western Australia Geothermal Energy Symposium (WAGES)

In late March, WAGES is being held in Perth over two days and I believe that it is appropriate that the ASEG is supporting this conference. I have been following developments in this space for a number of years. Geothermal energy has been promoted by many as our way to the carbonless future and on paper it sounds terrific.

Over the last ten years around \$640 million has been raised on capital markets and a number of companies have been floated. The Federal and State Governments have contributed in excess of \$150 million. Some companies are targeting deep (3–4 km) hot granite that would be fracture-stimulated to allow the circulation of water and create steam at the surface, whereas the other approach

is to find hot ground water close to basement that can be pumped to the surface for the recovery of heat.

It is a sad fact that many of the companies currently have market capitalisations that are well below the total money that has been invested, indicating that investors are far from convinced about their future. So far as I know, not one Watt of electricity has been generated commercially in spite of early bullish promises. This says everything about how risky the geothermal business is and how difficult it will be for small players. So why is this so?

My personal view is that the development of this industry is beyond the capability

of start up companies because of the geological risk and the impatience of risk markets. If governments are serious about this technology as one way to a carbonless future in Australia, it will take billions of dollars to develop, not a few hundred million.

Most of the presentations that I have heard over the years have focussed on the surface infrastructure side...generation, proximity to markets, powerlines etc., yet these are the easily definable risks. The geological side of the story has been downplayed to simple cartoons yet this is where the real risk lies....3 to 4 kilometres below our feet. It involves questions about rock type and structure, temperature, thermal conductivity, rock mechanics, porosity, permeability, fluid composition and many others. Measuring these both from the surface and below the surface around drill holes will be a future challenge for the geophysical profession.

Final words

This is the last President's Piece that I will be writing for *Preview*. I have tried to keep my bimonthly ramblings relevant to our profession and I take full responsibility for any opinions that I have expressed.

Against a buoyant resources sector, the past year has been a good one for the ASEG. Thanks to the great efforts of the Sydney organising committee our conference in August was a success with a large number of technical papers. It also made a healthy surplus that will help the ASEG to continue pursuing its activities on behalf of its members. At the conference we signed a memorandum of understanding with the Chinese Geophysical Society that I hope will lead to closer cooperation between the two societies in the future.

After a lot of hard work by Koya Suto, Phil Schmidt and Mike Asten, we have signed an agreement with the Society of Exploration Geophysicists of Japan, and the Korean Geophysical Society, to jointly publish our main technical journal, *Exploration Geophysics*. Our hope is that this will allow us to attract a broader range of high quality technical papers and increase the international standing of *Exploration Geophysics* as an academic publication.



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Dr Toshihiro Uchida
President
The Society of Exploration Geophysicists of Japan
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Dear Dr. Toshihiro,

On behalf of my colleagues and their families in the Australian Society of Exploration Geophysicists, I would like to express our very grave concern for your members and their families during the recent chain of events in Japan. The images of the earthquake and the resulting tsunami that we have seen on our televisions in Australia have been truly terrifying. Not to mention the follow-up concerns about the nuclear power stations. The scale of the loss of life is truly unbelievable.

I know that Japan is one of the countries in the world best prepared to handle such geological disasters, but this one is beyond what anyone could have imagined. I also know that the people of Japan show great strength in the face of such disasters and once you are over the immediate impact of the current events, the drive to rebuild a new life in the areas affected will be unparalleled anywhere else in the world.

As fellow earth scientists we understand better than most the nature of such geological events and their causes, but in no way does this diminish the personal impact that they have on us.

Our thoughts and hopes are with you all.

Kind regards,

Phillip Harman
President - The Australian Society of Exploration Geophysicists

My greatest disappointment is that I still get phone calls and emails about the website. We are living with an interim solution and are jointly developing a new website in cooperation with PESA. I understand everyone's frustration over the past year and hope that we will have a lasting solution soon.

On a more general front, during the past year I was somewhat relieved to find that the opinion storm raging over climate change and mankind's potential role in it took a breather. With the current situation in Federal parliament, it is clearly back on the agenda with the doomsayers voices saying 'we'll all be ruined' being heard again. Climate change aside, during the past year the world has seen serious natural disasters, some fairly close to home for all of us. These included the drought breaking floods and destructive cyclones in Australia, major volcanic eruptions in Iceland, earthquakes in New Zealand and as I write this piece,

the tragic events and huge loss of life in Japan.

None of these events were particularly unusual but the popular press made a real meal of them. Some of the climate change promoters will try to slate the weather events down to the human race, but the volcanic eruptions, the earthquakes and the subsequent catastrophic tsunami, just show us that we are forever at the mercy of earth and its inner rumblings. Nevertheless our hearts go out to all of those who have lost loved ones or been severely impacted in other ways.

My year as President has flown past and I feel privileged to have had the opportunity. I would like to pass on my personal thanks to everyone who has assisted me with their contributions to the ASEG, in particular the members of the Federal Executive and Branch committees along with Ron Adams and his team at CASM. Also, thank you to the editors of

our publications, in particular Ann-Marie Anderson-Mayes who is the life blood of *Preview*.

Finally, I wish the incoming president Dennis Cooke all the best for the coming year and look forward to working with him on the next Fedex committee.



Phil Harman
President
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New members

The ASEG extends a warm welcome to 23 new members to the Society (see table below). These memberships were approved at the Federal Executive meetings held on 27 January and 24 February 2011.

Name	Organisation	State/Country	Member grade
Sasha Banaszczyk	University of Western Australia	WA	Student
Mark Alexander Bell	Ground Probe	QLD	Active
Katherine Elizabeth Charlton	University of Melbourne	VIC	Student
Christian Cintolesi	Schlumberger Water Services	WA	Associate
Arjen Johan Dales	GroundProbe Geophysics	WA	Active
Neil Godber	Vale	QLD	Active
Anthony Richard Hallam	Origin Energy	QLD	Active
Lachlan Hennessy	Newexco Services	WA	Active
Troy Richard Hewitt	Pangaea Resources	NSW	Active
Thomas Edward Hoskin	University of Western Australia	WA	Student
Susan John	Nautilus Minerals Niugini	Papua New Guinea	Associate
Kledy Koloa	Nautilus Minerals Niugini	Papua New Guinea	Associate
Stephen John Lee	AGS Advanced Geophysical Systems	Germany	Active
Tarrant Gwyllim Meehan	University of Melbourne	VIC	Student
Gavin Trevor Mogensen	Griffith University	QLD	Student
Tyler Raleigh	Fugro Ground Geophysics	WA	Active
Craig Alan Smith	Fugro Airborne Surveys Pty Ltd	WA	Associate
Katherine Allison Stoate	University of Adelaide	SA	Student
Konstantin Tertyshnikov	Curtin University of Technology	WA	Student
Dave Toni	Resource Potentials	WA	Active
Nick Walton	IR Consulting	United Kingdom	Associate
Andrew Mark Weatherstone	Geophysical Resources and Services	NSW	Active
Scott Weber	Adelaide University	SA	Student

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Australian Capital Territory

The ACT branch held its AGM on 16 March. Tim Jones, recent Honours graduate from Macquarie Uni and now a Geoscience Australia graduate, kicked off proceedings with a short talk on his numerical modelling work looking at the influence of the post-perovskite phase transition on mantle plumes and lower-mantle thermomechanical piles.

During the AGM, Ron Hackney and Marina Costelloe were voted to continue as President and Secretary, but after many years in charge of finances, Leonie Jones decided to take a breather from the Treasurer's role. Matt Purss was voted in as the new Treasurer. General committee members include Leonie Jones (she didn't escape completely!), Eva Papp, Nick Rawlinson, Ned Stolz and Ray Tracey. Thanks are due to long-serving Treasurer, Leonie Jones, to retiring committee member Malcolm Sambridge, and to enthusiastic student representative Paul Sutherland.

The ACT Branch now looks forward to hosting Richard Lane for his South Pacific Honorary Lecture on 13 April (a week earlier than previously announced). At about the time that you read this, Richard will have made the long journey from GA to ANU for his lunch-time presentation.

Ron Hackney

New South Wales

In February we held our AGM and the usual suspects (myself, Bin Guo and Roger Henderson) were elected to the roles of President, Secretary and Treasurer. Following this, Roger Henderson, gave a presentation on 'The birds and the bees do it...but can humans?'; the talk was about the latest theories on 'magnetoreception' by the animal kingdom. Roger discussed how it is now thought that birds, at least, can not only sense the variation in the intensity of the magnetic field for use in their navigation but also 'see' the declination of the field. Roger reported on 'cryptochromes' and how this makes some animals sensitive to the magnetic field.

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.

The speaker for May will be Julian Vrbancich from the Department of Defence and the speaker for June will be Clive Foss from the CSIRO on 'Down-hole tensor magnetic gradiometry'.

Mark Lackie

Queensland

The Queensland Branch has kicked off 2011 with the SEG Pacific Honorary Lecturer Richard Lane presenting 'Building on 3D geological knowledge through gravity and magnetic modelling workflows at regional to local scales'. This was successfully held as an informal lunch, a departure from the usual evening drinks and nibbles.

Geokinetics also invited the Brisbane ASEG branch to a presentation in February by Mr Bill Pramik of Geokinetics on the onSEIS seismic energy source Geokinetics has brought to Australia. The Queensland Branch is currently on the lookout for some presenters to fill the 2011 program. If you can help or have any suggestions, please contact Fiona Duncan (fiona.duncan@bg-group.com).

Fiona Duncan

South Australia/Northern Territory

The SA/NT branch has hit the ground running this year with the AGM and first technical meeting of the year being held on the 8th of February. Philip Heath, Mike Hatch and Tania Dhu remain as President, Secretary and Treasurer respectively. Our guest speaker – David Dewhurst from the CSIRO in Perth – presented a talk entitled 'Strength prediction and rock physics response in shales'.

Our second talk was held on the 8th of March and we welcomed Richard Lane on his SEG Honorary Lecture tour of the South Pacific. His talk on 'Building on 3D geological knowledge through gravity and magnetic modelling workflows at regional to local scales' was well received, with questions continuing into the night. The photograph below shows Richard presenting his talk.

We have numerous events planned for the remainder of the year, including a barbecue at the University of Adelaide, to introduce students studying geophysics to the ASEG. Later in the year the SEG Distinguished Lecture and Distinguished Instructor Short Course will be visiting Adelaide and I invite local members to come along. Dennis Cooke will be giving a talk in April on the history of Shale Gas, and we still have room for a couple of talks if anyone is interested for later in the year.



Richard Lane on the SEG Honorary Lecture South Pacific tour in Adelaide.

We will also hold our regular social events, including the Melbourne Cup lunch and Christmas Party. The wine offer will be on again this year. **Please ensure your email addresses are up to date so you don't risk missing out! (If you are an ASEG member and are not receiving emails please contact CASM (aseg@casm.com.au) to ensure your email address is up to date.)**

The SA branch holds technical meetings monthly, usually on a Tuesday or Thursday night at the Coopers Ale House beginning 5:30 pm. New members and interested persons are always welcome. Please contact Philip Heath (philip.heath@sa.gov.au) for further details.

Philip Heath

Victoria

On 25 October 2010 at the Kelvin Club in Melbourne, the Annual General Meeting for the ASEG Victorian Branch saw the election of new committee members: Asbjørn Christensen – President, John Theodoridis – Secretary, and Kent Balas – Treasurer. We say 'thank you' to Richard Macrae and Phillip Skladzien who with much enthusiasm had served the latter two positions respectively.

A technical talk followed the AGM in which Prof. Alan Green of the Swiss Federal Institute of Technology (ETH), Zurich, Switzerland issued his ASEG/SEG 2010 Distinguished Lecturer Presentation, entitled 'Mapping active major faults using 3D ground penetrating radar and 2D and 3D high resolution reflection seismology – examples from New Zealand'.

Subsequently Prof. Alan Green held a one-day Distinguished Instructor course, entitled 'Application of seismic and geo-electric geophysical methods to near-surface and engineering related studies' at Monash University – Clayton Campus on 12 November, attracting near thirty professionals all of whom benefited greatly from Prof. Green's unique expertise.

On 8 December 2010 Victorian ASEG members attended the combined PESA–SPE–ASEG end of year technical meeting held at The Victoria Hotel. Whilst treated to a generous three course meal, participants gave audience to a slide show entitled '16 years of Papua New Guinea experiences' presented by the special guest speaker – Roger Thornton. Utilising

his 40 plus years experience in the oil and gas industry, Roger Thornton canvassed the many difficulties of exploration in a challenging mountainous terrain, whilst reconciling it with the sensitive cultural needs of the indigenous people of Papua New Guinea; all of which was presented in both a fascinating and entertaining manner. Inter-society events such as this reflect the ongoing relationship between PESA and the ASEG.

With great privilege to the Victorian Branch of the ASEG, Richard Lane commenced his tour of Australia, on 24 February at the Kelvin Club in Melbourne, as the 2011 Pacific South Honorary Lecturer. Sponsored and supported by Shell and the SEG, his lecture entitled 'Building on 3D geological knowledge through gravity and magnetic modelling workflows at regional to local scales' explored the renewed interest in researching potential field

modelling techniques in light of advances in 3D software tools and lower cost processing abilities using distributed networks. Richard's presence at our first technical meeting for the year drew a significant audience, which culminated in a lively philosophical discussion relating to the characterisation of model uncertainty and its final relationship with geological actuality.

Finally, on Wednesday 30 March at the Kelvin Club, the ASEG Victorian Branch will be hosting the Annual Student Night, giving local graduating students an opportunity to present their research in a professional forum. Contributing students are anticipated from Melbourne, Monash and RMIT universities. Not only should this prove to be an exciting night for all, but a unique opportunity to extend a warm welcome to our new graduates into the geophysics profession.

John Theodoridis

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