



ASEG 2012 22nd ASEG International Conference and Exhibition News Update (04)

CALL FOR PAPERS

It's all systems go in the lead-up to the ASEG 22nd International Conference and Exhibition. The Call for Papers has been released and the sponsorship and exhibition documents have also been published. The conference has been promoted at the EAGE in Vienna. We are particularly looking for papers that address the conference theme with the application of geophysics in the exploration of unconventional resources.

Please visit our website at www.aseg2012.com.au to lodge an expression of interest.

Co-Chairs: Wayne Mogg & Andrea Rutley

Technical: Binzhong Zhou

Sponsorship: Ron Palmer & Position vacant

Exhibition: Gary Butler & John Donohue

Finance: Noll Moriarty

Workshops: Koya Suto

Publicity: Henk van Paridon

Students: Shaun Strong

Social: Janelle Kuter

Anyone able to help (urgent request for people to help with papers) should contact Binzhong Zhou (binzhong.zhou@csiro.au). You don't need to be in Brisbane.

Our conference theme of 'Unearthing new layers' recognises that transformational change within our industry remains achievable, and as such we invite contributions from all geophysical and related disciplines, highlighting the application of geophysics in diverse industries from resource exploitation to environmental and engineering applications.

Henk van Paridon

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Update on Geophysical Survey Progress from the Geological Surveys of New South Wales, Queensland, Tasmania, Western Australia, and Geoscience Australia (information current at 10 March 2011)

Tables 1–3 show the continuing acquisition by the States, the Northern Territory and Geoscience Australia of new gravity, airborne magnetic and radiometrics, and airborne EM over the Australian continent. All surveys are being managed by Geoscience Australia.

This issue reports new surveys which are part of the Queensland Government's

Greenfields 2020 Program. There are two gravity surveys (see Figure 1) and four airborne magnetic and radiometric surveys (see Figure 2). The surveys are located in the Longreach area of central Queensland (Galilee surveys – Figures 3 and 4) and in the Cunnamulla–St George area adjacent to the New South Wales border (Thomson surveys – Figures 5–8). For further details

please contact Bernie Stockill, Senior Geoscientist, Geological Survey of Queensland on 07 3896 9447 or email bernie.stockill@deedi.qld.gov.au.

An additional new airborne mag/rad survey is being undertaken for the Geological Survey of New South Wales in the Grafton-Tenterfield area (see Figure 9).

Table 1. Airborne magnetic and radiometric surveys

Survey name	Client	Contractor	Start flying	Line (km)	Spacing AGL Dir	Area (km ²)	End flying	Final data to GA	Locality diagram (Preview)	GADDS release
South Officer 1 (Jubilee)	GSWA	Thomson	1 Jun 10	180 000	200 m 50 m N–S	32 380	59.1% complete @ 13 Feb 11	TBA	148 – Oct 10 p23	Survey on hold due to standing water in the survey area
South Officer 2 (Waigen – Mason)	GSWA	Thomson	28 Jun 10	113 000	400 m 60 m N–S	39 890	100% complete @ 5 Jan 11	TBA	148 – Oct 10 p24	QA/QC of final data in progress
East Canning 3 (Stansmore)	GSWA	Thomson	14 Jul 10	114 000	200 m (east) 400 m (west) 50 m N–S	25 934	100% complete @ 2 Nov 10	TBA	148 – Oct 10 p24	QA/QC of final data in progress
Eucla Basin 2 (Loongana)	GSWA	Fugro	20 Jun 10	113 000	200 m 50 m N–S	20 320	100% complete @ 3 Dec 10	TBA	148 – Oct 10 p24	QA/QC of final data in progress
Eucla Basin 4 (Madura)	GSWA	Fugro	1 Jul 10	102 000	200 m 50 m N–S	18 220	100% complete @ 22 Nov 10	TBA	148 – Oct 10 p24	QA/QC of final data in progress
Eucla Basin 5N (Forrest)	GSWA	Fugro	16 Jun 10	75 000	200 m 50 m N–S	13 040	100% complete @ 12 Sep 10	TBA	148 – Oct 10 p25	QA/QC of final data in progress
Eucla Basin 5S (Eucla)	GSWA	Fugro	6 Jul 10	87 500	200 m (onshore) 400 m (offshore) 50 m (onshore) 100 m (offshore) N–S	16 100	100% complete @ 5 Nov 10	TBA	148 – Oct 10 p25	QA/QC of final data in progress
South Canning 1 (Madley – Herbert)	GSWA	Aeroquest	19 Jul 10	95 000	400 m 60 m N–S	33 520	100% complete @ 12 Nov 10	TBA	148 – Oct 10 p25	QA/QC of final data in progress
South Canning 2 (Morris – Herbert)	GSWA	Aeroquest	1 Jul 10	125 000	400 m 60 m N–S	45 850	100% complete @ 11 Jan 11	TBA	148 – Oct 10 p25	QA/QC of final data in progress
North Canning 4 (Lagrange – Munro)	GSWA	Aeroquest	20 Sep 10	103 000	400 m 60 m N–S	36 680	68% complete @ 9 Jan 11	TBA	148 – Oct 10 p26	Survey delayed due to unfavourable weather conditions for survey flying
Southeast Lachlan	GSNSW	Fugro	1 Mar 10	107 533	250 m (NSW) 500 m (ACT) E–W	24 660	100% on 9 Sep 10	TBA	144 – Feb 10 p15	TBA

Table 1. *Continued*

Survey name	Client	Contractor	Start flying	Line (km)	Spacing AGL Dir	Area (km ²)	End flying	Final data to GA	Locality diagram (Preview)	GADDS release
Grafton – Tenterfield	GSNSW	TBA	TBA	100 000	250 m 60 m E–W	23 000	TBA	TBA	This issue (Figure 9)	TBA
West Kimberley	GSWA	Aeroquest	TBA	134 000	800 m 60 m N–S Charnley: 200 m 50 m N–S	42 000	TBA	TBA	150 – Feb 11 p20	Expected to commence April 2011
Perth Basin North (Perth Basin 1)	GSWA	Fugro	TBA	96 000	400 m 60 m E–W	30 000	TBA	TBA	150 – Feb 11 p20	Expected to commence April 2011
Perth Basin South (Perth Basin 2)	GSWA	Fugro	TBA	88 000	400 m 60 m E–W	27 500	TBA	TBA	150 – Feb 11 p20	Expected to commence April 2011
Murgoo (Murchison 1)	GSWA	Thomson	28 Feb 11	128 000	200 m 50 m E–W	21 250	5.6% complete @ 7 Mar 11	TBA	150 – Feb 11 p20	TBA
Perenjori (Murchison 2)	GSWA	GPX	TBA	120 000	200 m 50 m E–W	20 000	TBA	TBA	150 – Feb 11 p21	Expected to commence July 2011
South Pilbara	GSWA	GPX	TBA	136 000	400 m 60 m N–S	42 500	TBA	TBA	150 – Feb 11 p21	Expected to commence May 2011
Carnarvon Basin North (Carnarvon Basin 1)	GSWA	GPX	TBA	104 000	400 m 60 m E–W	32 500	TBA	TBA	150 – Feb 11 p21	Expected to commence April 2011
Carnarvon Basin South (Carnarvon Basin 2)	GSWA	GPX	TBA	128 000	400 m 60 m E–W	40 000	TBA	TBA	150 – Feb 11 p21	Expected to commence February 2012
Moora (South West 1)	GSWA	Aeroquest	TBA	128 000	200 m 50 m E–W	21 250	TBA	TBA	150 – Feb 11 p22	Expected to commence April 2011
Corrigin (South West 2)	GSWA	GPX	TBA	120 000	200 m 50 m E–W	20 000	TBA	TBA	150 – Feb 11 p22	Expected to commence October 2011
Cape Leeuwin – Collie (South West 3)	GSWA	Fugro	TBA	105 000	200/400 m 50/60 m E–W	25 000	TBA	TBA	150 – Feb 11 p22	Expected to commence April 2011
Mt Barker (South West 4)	GSWA	GPX	TBA	120 000	200 m 50 m N–S	20 000	TBA	TBA	150 – Feb 11 p22	Expected to commence April 2011
Offshore East Coast Tasmania	MRT	Fugro	28 Feb 11	30 895	800 m 90 m E–W	19 570	10.6% complete @ 28 Feb 11	TBA	150 – Feb 11 p23	TBA
Galilee	GSQ	TBA	TBA	125 959	400 m 80 m E–W	44 530	TBA	TBA	This issue (Figure 4)	TBA
Thomson West	GSQ	TBA	TBA	146 000	400 m 80 m E–W	52 170	TBA	TBA	This issue (Figure 6)	TBA
Thomson East	GSQ	TBA	TBA	131 100	400 m 80 m E–W	46 730	TBA	TBA	This issue (Figure 7)	TBA
Thomson Extension	GSQ	TBA	TBA	47 777	400 m 80 m E–W	16 400	TBA	TBA	This issue (Figure 8)	TBA

TBA, to be advised.

Table 2. Gravity surveys

Survey name	Client	Contractor	Start survey	No. of stations	Station spacing (km)	Area (km ²)	End survey	Final data to GA	Locality diagram (Preview)	GADDS release
Albany – Fraser North	GSWA	Atlas	21 Oct 10	9200	2.5 km regular	50 980	100% on 30 Jan 11	TBA	146 – Jun 10 p17	QA/QC of final data in progress
Sandstone	GSWA	IMT	Early Oct 10	6300	2.5 km regular	35 640	100% on 17 Dec 10	TBA	146 – Jun 10 p17	QA/QC of final data in progress
South Gascoyne	GSWA	IMT	9 Aug 10	9700	2.5 km regular	55 760	100% on 27 Oct 10	TBA	146 – Jun 10 p17	QA/QC of final data in progress
Galilee	GSQ	IMT	April 11	6400	2.5 km regular	TBA	TBA	TBA	This issue (Figure 3)	TBA
Thomson	GSQ	Daishsat	April 11	7670	2.5 km regular	TBA	TBA	TBA	This issue (Figure 5)	TBA

TBA, to be advised.

Table 3. Airborne electromagnetic surveys

Survey name	Client	Contractor	Start survey	Line (km)	Spacing AGL Dir	Area (km ²)	End survey	Final Data to GA	Locality diagram (Preview)	GADDS release
Frome	GA	Fugro	22 May 10	34 986	5000 and 2500 100 m E-W	95 450	100% on 31 Oct 10	TBA	146 – Jun 10 p18	QA/QC of final data in progress

TBA, to be advised.



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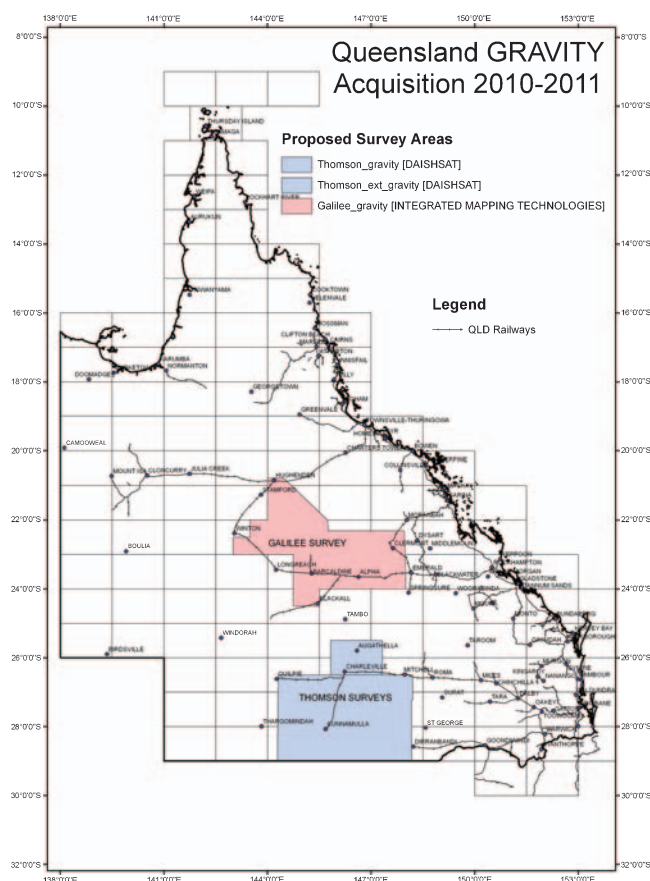


Fig. 1. Location diagram for new gravity surveys in Queensland.

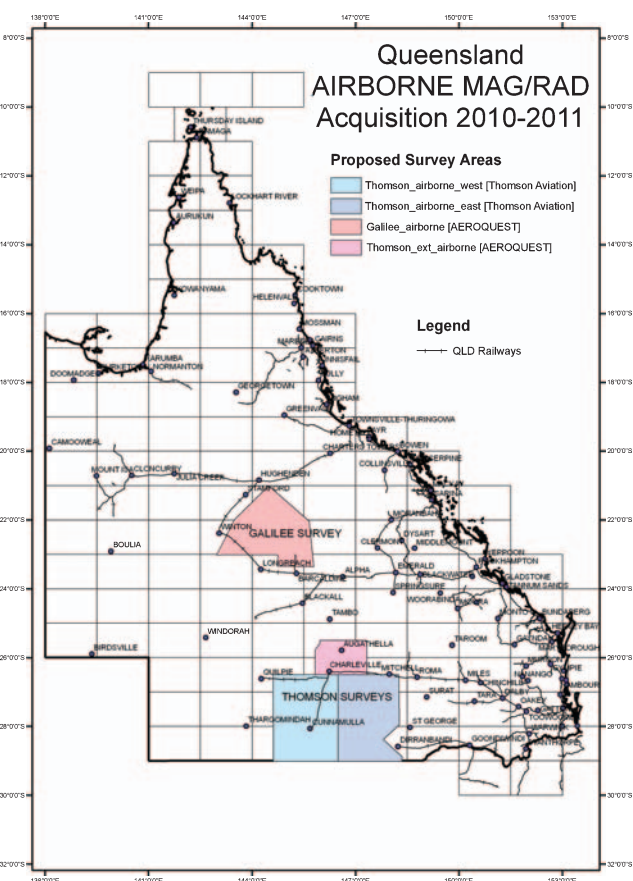


Fig. 2. Location diagram for new airborne mag/rad surveys in Queensland.

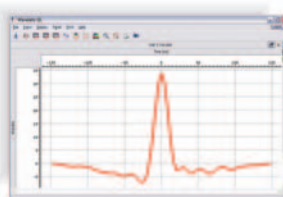
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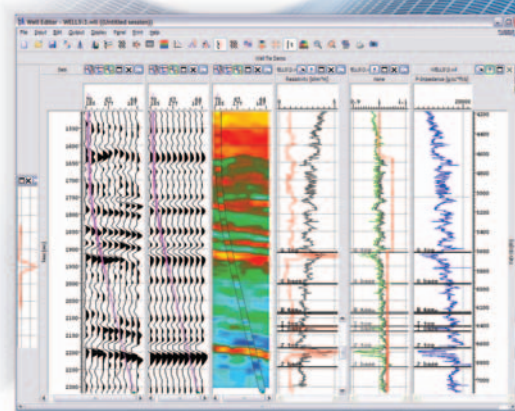
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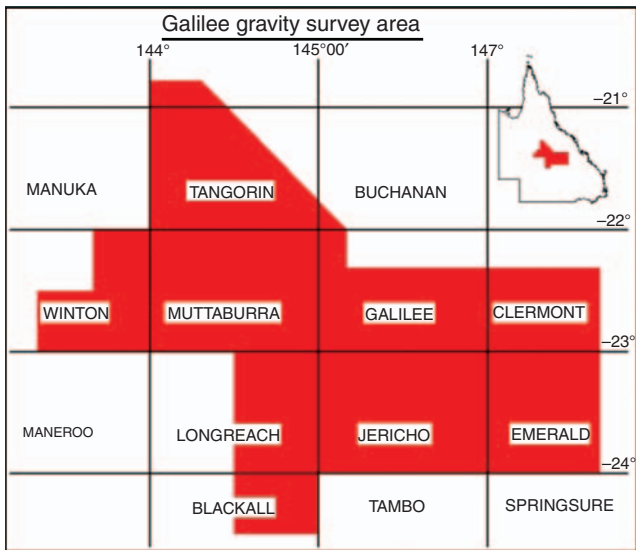


Fig. 3. Survey area for Galilee gravity survey.

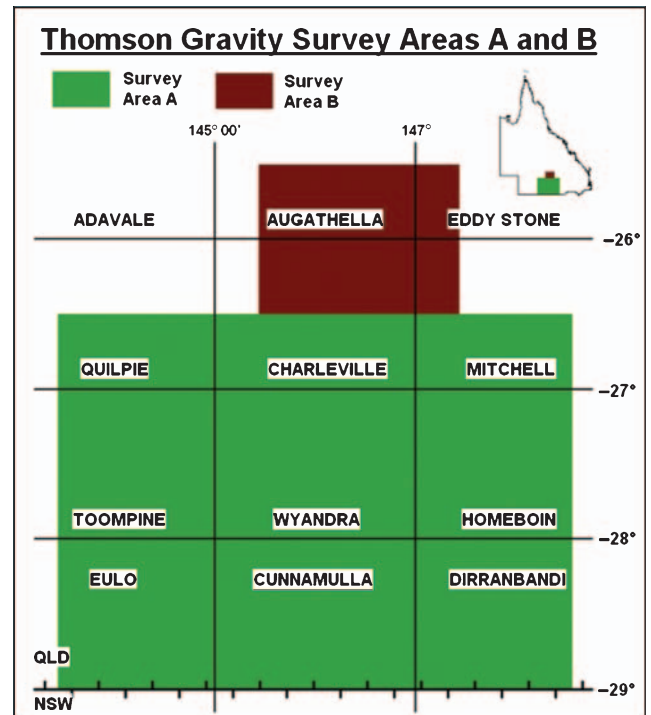


Fig. 5. Survey area for Thomson gravity surveys A and B.

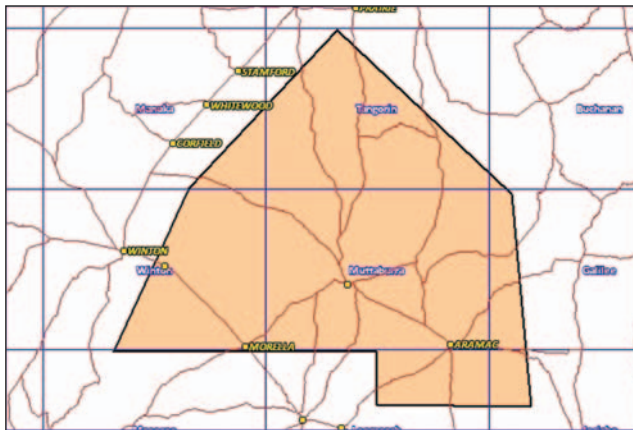


Fig. 4. Survey area for Galilee airborne mag/rad survey.

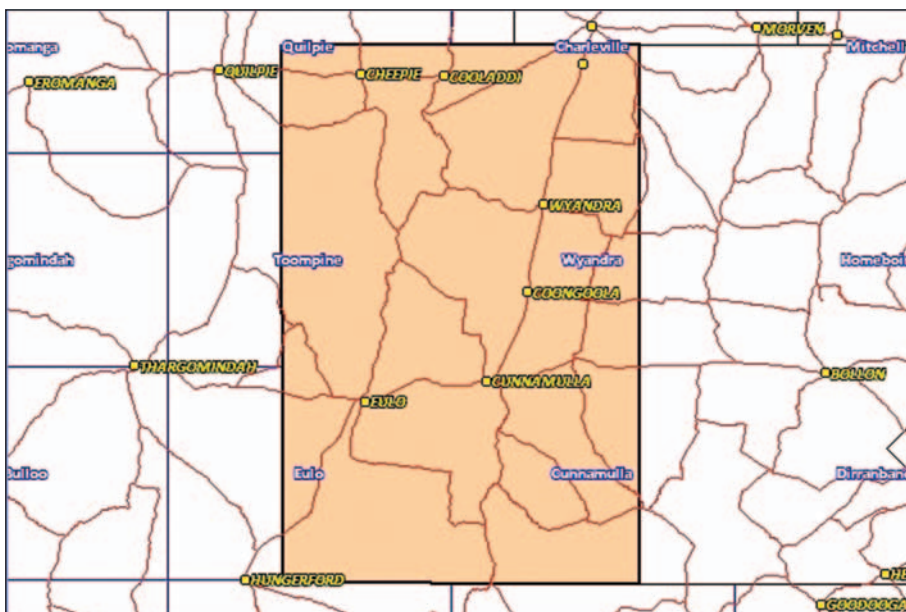


Fig. 6. Survey area for Thomson West airborne mag/rad survey.

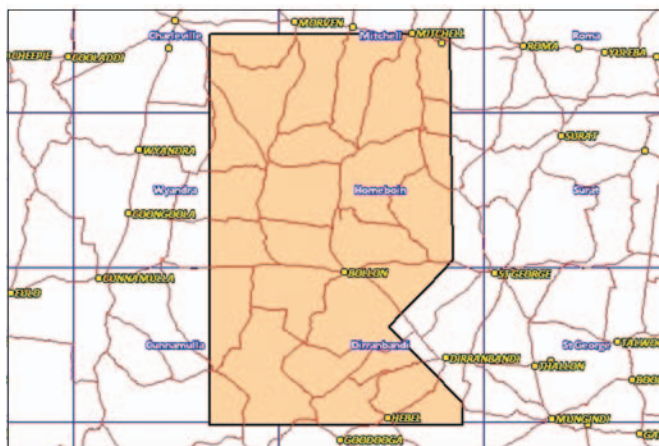


Fig. 7. Survey area for Thomson East airborne mag/rad survey.

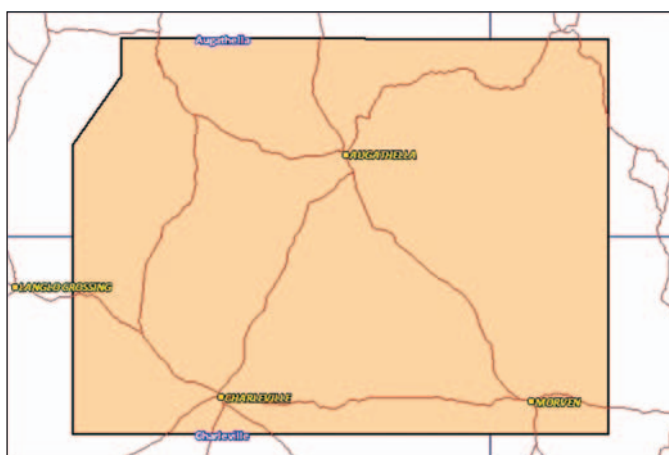


Fig. 8. Survey area for Thomson Extension airborne mag/rad survey.

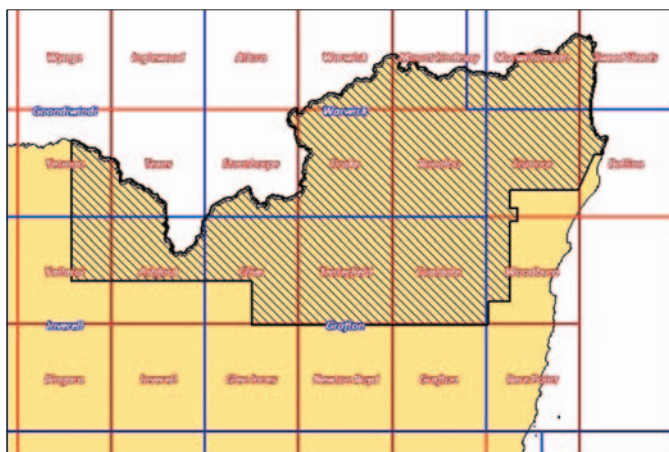


Fig. 9. Survey area for Grafton-Tenterfield airborne mag/rad survey.



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Geological Survey of South Australia

The 2011 South Australian Resources and Explorers Investment Conference (SAREIC) will be held on the 2nd to 4th of May at the Hilton Hotel, Adelaide. Several new geophysical products will be presented at this conference, including new state gravity and radiometric images, the Cariewerloo AEM surveys and interpretation, and the launch of a new SARIG (South Australian Resources Information Geoserver).

The new version of SARIG is designed to work in a larger variety of Internet browsers. It is easier and faster to use. Floating windows allow a wider view area, and the resolution of the map alters depending on the scale of the view. Searching and downloading geophysical data remains as a standard feature using the Intrepid Jetstream technology. Figure 10 shows a snapshot of the new SARIG.

New state grids have been constructed for gravity and radiometrics (Uranium and Thorium, with the remainder in progress). The gravity grid has been constructed through a process of point selection (many erroneous and duplicate points are removed before gridding), gridding old surveys separately to the new surveys, and merging the grids together. The resultant grid fixes numerous problems of the old grid, notably the 'dimple' problem. The radiometric grids have been constructed using a new grid adjustment tool developed at Geoscience Australia (GA). The new grids exhibit fewer breaks between surveys and contain the latest open file surveys.

Four AEM lines were flown over the Cariewerloo Basin in 2010. A new interpretation using these data, Auscope Hylogger 2-3 information, NITON XRF data and all available geology and geophysical data will be presented at the conference and released as a package in order to assess the unconformity uranium potential of the region.

The GA and PIRSA Frome AEM survey data will be released prior to SAREIC, however Ian Roach from GA will be presenting the data and some initial interpretations at the conference.

For more information, please contact Philip Heath (philip.heath@sa.gov.au).

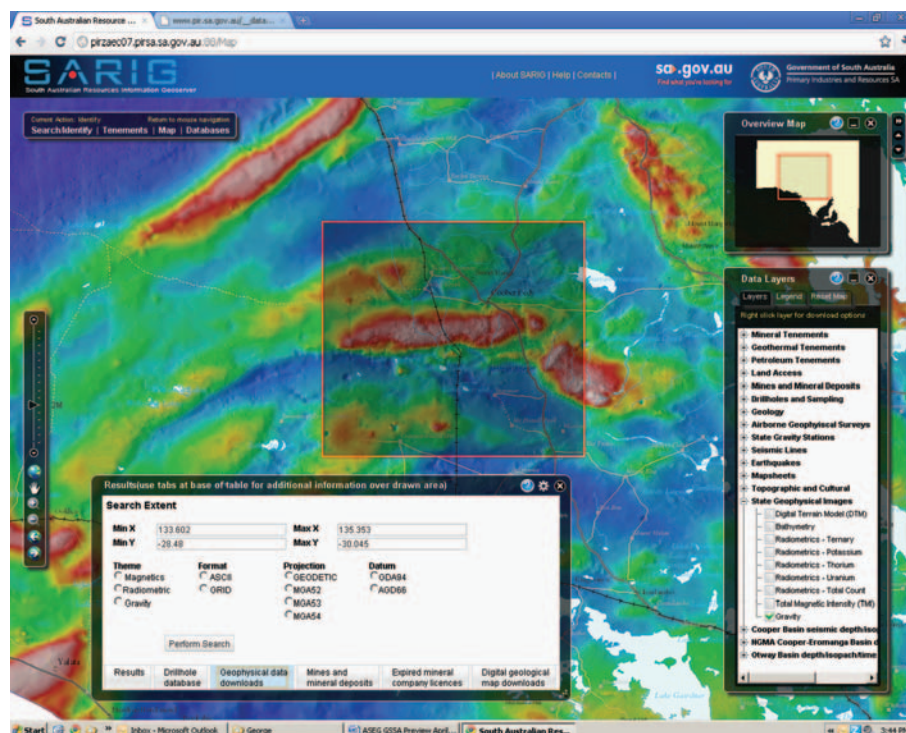



Fig. 10. The new SARIG will be released at the SAREIC meeting in early May.



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ERA 2010 assesses Australia's university research output

In February 2008 the Minister for Innovation, Industry, Science and Research, Senator Kim Carr, announced his plans for a new research quality and evaluation system. After two years, and with an allocation of \$35.8 million over four years, the first national *Excellence in Research for Australia* (ERA) report has been published (http://www.arc.gov.au/era/outcomes_2010.htm).

The assessment, carried out by the Australian Research Council, examined research quality from approximately 330 000 research outputs, more than 55 000 researchers, and across the nation's 41 universities.

The result is a 314 page tome, packed with statistics over a range of 156 discipline groups. It is a very impressive document, but whether it will serve to improve Australia's research performance only time will tell. And I can't help thinking that perhaps the \$35.8 million could/should have been allocated to a few more post docs or research students.

The five objectives of the ERA are to:

1. Establish an evaluation framework that gives government, industry, business and the wider community assurance of the excellence of research conducted in Australia's higher education institutions.
2. Provide a national stocktake of discipline-level areas of research strength and areas where there is opportunity for development in Australia's higher education institutions.
3. Identify excellence across the full spectrum of research performance.
4. Identify emerging research areas and opportunities for further research development.
5. Allow for comparisons of Australia's research nationally and internationally for all discipline areas.

Table 1. The ERA 2010 rating scale (Source: www.arc.gov.au/pdf/ERA_report.pdf – p. 5)

Rating	Descriptor
5	The Unit of Evaluation profile is characterised by evidence of outstanding performance well above world standard presented by the suite of indicators used for evaluation
4	Above world standard
3	Average performance at world standard
2	Below world standard
1	Well below world standard
n/a	Not assessed due to low volume. The number of research outputs does not meet the volume threshold standard for evaluation in ERA.

Table 2. ERA 2010 results for Earth Sciences (Source: www.arc.gov.au/pdf/ERA_report.pdf – p. 267)

University	Discipline Group					
	04 Earth Sciences	0402 Geochemistry	0403 Geology	0404 Geophysics	0405 Oceanography	Physical geography and environmental geoscience
Australian National University*	5	5	5	3	5	5
Curtin University of Technology	5	4	5	3		
Deakin University	2					
Flinders University	3				2	
Griffith University	4				4	4
James Cook University	4	4	4		3	3
La Trobe University	1					
Macquarie University	5	5	5			5
Monash University*	4		4	4		4
Queensland University of Technology	3		3			
Southern Cross University	4	5				
University of Adelaide*	5		5	3		
University of Canberra	3					
University of Melbourne*	5	4	5	4		4
University of New South Wales*	4		4	3	3	3
University of Newcastle	3		3			
University of Queensland*	3	3	3	3	4	3
University of Sydney*	4		4			3
University of Tasmania	4	3	4	3	5	3
University of Western Australia*	5	4	5	5	3	3
University of Wollongong	4		3			4

*Member of the Group of Eight Universities.

Whether these are useful objectives or whether the report enables the objectives to be achieved, I cannot say. But to my mind the wording is somewhat bureaucratic and it would be difficult to assess whether the objectives are being met or even whether they are worthwhile.

I have three major problems with the process. First, the evaluation appears to be based predominantly on papers published in peer reviewed journals, books published and chapters in books. In other words, the 'publish or perish' criterion is still alive and well. There appears to be no allowance for the original thinkers or impact factors. But then these criteria are very hard to measure. Some of the best science is done by people who are not prolific publishers – how are these catered for?

Second, once a hierarchy of institutions is established these tend to become entrenched. Good students and researchers will be attracted to universities with the higher scores; the good will become better and the poor may well become worse. In biblical terms they will be Matthewed! The Group of Eight will continue to dominate Australia's research efforts in universities. Maybe that is a good outcome, because perhaps we can't and shouldn't have 41 world ranking universities for research. If so then we do not need a review to tell us which are the best institutions.

And third, by the time a student or a researcher is looking at where to study or work, he/she should be aware of the 'good' and 'not so good' places to go to in Australia by networking with peers or simply looking at the ARC results. If businesses were looking for collaborators in universities, they should be able to find out where to look. For example, if BHP or RioTinto wanted a collaborative research project on mineral or petroleum exploration, they would surely know already who to talk to and wouldn't start by looking up ERA results.

Regardless, the analysis finished up with six categories of ratings. These are summarised in Table 1. The results for some of the Earth Science disciplines are listed in Table 2. Of the 41 universities only 21 met the threshold for evaluation and so only these are shown in Table 2.

I am not going to comment on the ratings except to ask a question. Would you agree with them?

David Denham

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Good news for 2010 gold and gas production

Gold production in 2010 rebounds to highest level since 2003

Australian gold production in 2010 rose to 261 tonnes, its highest level since 2003 (290 tonnes) as companies took advantage of increased gold prices. If these are adjusted for inflation they are now at their highest, in Australian dollars, since 1981 (see Figure 1).

Production in 2010 increased by about 17% from the 2009 result of 224 tonnes; but it still has a long way to go to catch the record 314 tonnes recorded in 1997.

Figure 1 shows Australian gold production since 1970, the gold price in Australian dollars per ounce, with cpi adjustments, and the expenditure on gold exploration since 1988. It is interesting to note that in the late 1970s, when the gold price first took off, it took about nine years for the production results to follow; whereas this time it has only taken about four years. The apparent lack of

correlation between exploration expenditure and gold production is a bit of an enigma, unless there is a lead time of about 25 years. Clearly if nobody spent any money hunting for gold then none would be found, but the peak expenditure in 1997 did not appear to translate into an increase in production.

According to Sandra Close of Surbiton Associates 'China was number one in the world with reported production of 341 tonnes and it looks as though the United States will come in as number three with an output of around 240 tonnes...South Africa, which produced more than 1000 tonnes of gold in 1970 and for decades was the world's largest producer of the precious metal, is expected to record an output of about 200 tonnes for 2010.' This is South Africa's lowest production for over 60 years.

According to Surbiton Associates the top Australian producer in 2010 was still Barrick Gold's and Newmont's Super Pit

at Kalgoorlie but its production fell by 0.7 tonnes in the December quarter. However, Boddington was the star performer with a quarterly production of about 6.4 tonnes, up by approximately 0.8 tonnes from the previous quarter and closing in on the Super Pit's premier ranking.

Gas production highest ever in 2010

Meanwhile, as a result of increasing global demand for the country's liquefied natural gas (LNG), together with growth in domestic gas-fired power generation, a new natural gas production record was set in 2010, according to EnergyQuest. According to their report, 'Australian natural gas production reached a record 1999 petajoules (PJ) last year, up 5.1% from the previous year's 1902 PJ.'

EnergyQuest reported, 'LNG production grew by 6.2% last year, from 18.6 million tonnes per annum (Mtpa) in 2009 to 19.8 Mtpa due to production from the 'fifth train' of the North West Shelf. The value of LNG exports was a record \$9462 million, an increase of 24% over the previous year's \$7631 million.'

'The LNG momentum looks set to continue in 2011,' EnergyQuest CEO, Graeme Bethune, said. 'So far this year we have already seen another Gladstone LNG project, GLNG, in central Queensland, reaching sanction and the ConocoPhillips/Origin Energy APLNG project, also situated at Gladstone, reaching major milestones,' he said.

Mr Bethune highlighted the strong growth in natural gas production on Australia's east coast, where coal seam gas production reached a record 222 PJ, an increase of 43 PJ from 2009. 'Gas-use for power generation on the east coast continues to grow and increased by 28 PJ for the year to 209 PJ, with growth of 35 PJ in Queensland.'

And if a proper pollution tax was in place, the use of natural gas for power generating would grow even faster.

David Denham

Quarterly gold production, price and exploration data for Australia

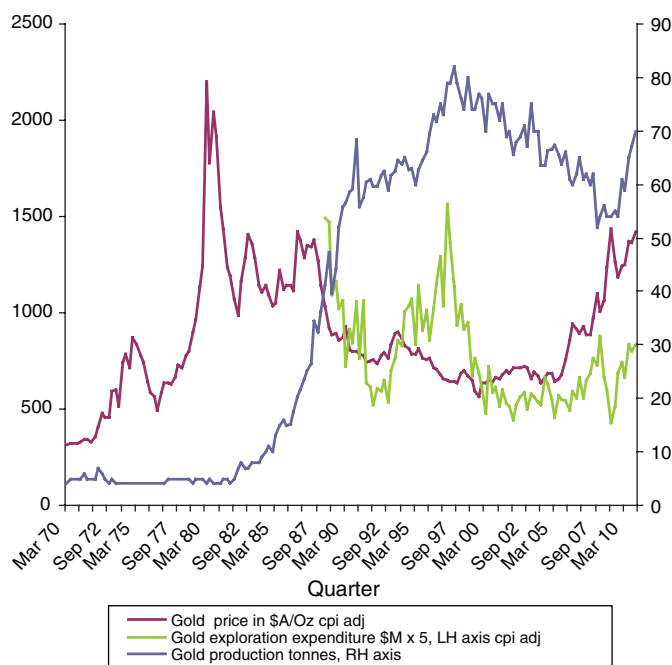


Fig. 1. Quarterly Australian gold production and gold price (cpi adjusted and in A\$) from 1970 through 2010. Gold exploration expenditure (cpi adjusted) from ABS data from September 1988 is also plotted. All prices have been converted to Australian dollars because most of the operating expenses are incurred in that currency.

New report on Radioelement Mapping

The International Atomic Energy Agency (IAEA) has released a new report on 'Radioelement Mapping' that will be of interest to geoscientists working with radioelement data derived from both geochemical and gamma-ray spectrometric surveys. The report was compiled by a group of experts invited by the IAEA to review the current state of radioelement mapping and the development of global radioelement baselines.

The report notes that radioelement baselines are essential for many research applications in the earth and life sciences:

'The benefits of radioelement baselines include the effective use of radioelement data for uranium

exploration and mining, geological mapping, and mineral (including hydrocarbon exploration) and regolith mapping. Radioelement baselines also benefit land use mapping, and are used in health and environmental applications, for both natural and anthropogenic sources. Also, the regulatory framework surrounding radioactive materials cannot be effectively established without knowledge of the natural variability of radioelements on the Earth's surface. Radioelement baseline data sets are thus crucial for the setting of good public policy in relation to uranium resources discovery and development.'

The report covers the benefits and uses of radioelement baselines and the methodology to establish such baselines for radioelement concentration estimates derived from both geochemical and gamma-ray spectrometric surveys. It also includes chapters on the global status of radioelement mapping and the application of radioelement baselines to uranium exploration, mining, milling and remediation.

The report is available as a free PDF download from http://www-pub.iaea.org/mtcd/publications/pdf/pub1463_web.pdf.

Brian Minty

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Fugro... Local Presence - Global Perspective

Kelly Keates – Owner and Managing Director, Zonge Engineering and Research Organization (Australia)



Zonge Engineering was formed in the USA in 1972 by Ken Zonge. In 1984 Zonge Engineering (Australia) was established in Adelaide, South Australia. Kelly Keates started working for Zonge in 1991, became a director in 1993 and then purchased the business 13 years later in 2006. I interviewed Kelly via email about her personal path into the geophysics industry, her views on the geophysical contracting industry in general, and the recognition she has received as a woman in business, particularly in an industry that is dominated by men. My very warm thanks go to Kelly for taking the time to share her thoughts on these questions.

Can you give a brief summary of how your career started and how it lead ultimately to becoming Managing Director and owner of Zonge Engineering (Australia)?

In 1991 I applied for an advertised position at Zonge as a field assistant. I had previously completed work experience with Western Mining at Roxby Downs for the Geology Department, doing underground sampling and logging core. I really enjoyed the people and duties at WMC and was focused on gaining employment in the industry. I had completed a Bachelor of Arts and had enjoyed structural geomorphology and remote sensing so geophysics seemed like an interesting field. Van Reed, then Managing Geophysicist at Zonge, thought that I would be better suited to help organise the administration duties, and offered me a part-time one day a week administration position. Although I never made it to the field I enjoyed the challenges of logistics, HR, finances, management, marketing and equipment.

Striving to make Zonge a better place to work and provide specialised quality data and safe service to our clients has been a constant goal for me.

A few years after I started, Van moved back to the USA and Ken Zonge asked me to become director of Zonge Australia. Ken was very supportive and had always encouraged me to create vision and direction for the Australian office as it grew over the years. The structure of the company has allowed me to focus on the business and strategy together with a great team of geophysicists. When Ken decided to retire, he similarly encouraged me to purchase the company. It took some convincing for me to think that this would be a good idea as I had a young family, but eventually Ken talked me into it. The change from Director/Manager was significant and unexpected. I had thought there would be no difference as essentially it would be the same role, but I had underestimated the scope for change and perception in myself and others. Initially it was challenging, but it has been a rewarding journey.

Zonge is a well known contracting firm in the Australian geophysics scene. How is business for contractors at the moment?

Zonge was established in Australia in 1984 as a spin off from our work for Western Mining Corporation at the Roxby Downs site. Our business is mainly in the exploration industry although we do also run environmental and engineering surveys. This means we are the first affected by the boom–bust cycle when it downturns and there is less funding for exploration, but on the flip side when the resource demand takes a turn the industry is very quick to respond. We are in the lucky position to have good relationships with our competitors and the general consensus is that there has been a significant increase in surveys over the last half of last year and continued interest into this year for exploration services. Unfortunately the weather conditions are preventing us from accessing some survey sites at present but we expect the next quarter to see a significant increase. We have mobilised a number of crews for overseas work while there is uncertainty in Australia due to the weather conditions.

How has the industry changed over the last ten years?

Increasing safety awareness has had a considerable positive effect on our business over the last ten years. The change of focus in the industry has given us the opportunity to go back to basics, look at what we do and how we do it, and ensure that procedures are in place for all our activities and increased safety for everyone. These safety procedures furthermore help the crew to conduct a more efficient survey.

Additionally there has been a cultural change within the company over the last ten years. We have recognised that there were ways we could improve the conditions for our employees and also deliver better outcomes for our clients. Zonge has faced several challenges in growing the business including managing sales and employment growth, looking at ways to ensure a safe quality end product whilst not increasing production costs, as well as successfully developing new products and integrating process introduction. Of course the changes in technology have made things much easier with increased internet access, affordable communications, and more accurate equipment including GPS.

What are your career highs – the things that make you love being a part of this business? Have there been any lows and what have you learnt from them?

I have had some amazing opportunities over the years and am often thankful that I chose this industry rather than speech therapy. I love the fact that every day at work can be different; there is always a new challenge involving people, equipment and logistics. I love the fact that it is a small friendly industry and that Ken Zonge trusted me with his company from the start. I love that we work in the most remote corners of the globe and Australia. I love to travel so I really enjoy going to the field to spend time working with crews and making visits to clients and attending conferences. Right now I am loving the work we are doing to improve our business through the Enterprise Connect review program and Innovate SA. They recently informed me that Zonge was in the top 5% of businesses in Australia which is something we are all very proud of.

Amazing opportunities to do things like demonstrating equipment for the UN, assisting with environmental water monitoring, taking on big projects with big explorers and small projects with prospectors, and providing them with accurate data to assist with their resource delineation keeps me on a high.

Amazingly the lows happen around the same time as the downturn in the cycle. The hard part is fear of losing staff to another industry in slow periods. The uncertainty and uncontrollability of the downturns are difficult. Although we can do our best to provide accurate efficient surveys, if there is no-one doing exploration...

As a woman heading a geophysical contracting business in Australia, you are part of a very small group. Do you have any suggestions as to why there are not more women in our male-dominated industry? Should we be more actively promoting geophysics to women as a career alternative?

I guess I have managed in my work life not because I am a woman but because I didn't let it get in the way. It is probably best not to focus on the imbalance of men to women in the industry because it might get intimidating. Our work is physically and emotionally challenging and we have and do welcome women to come and join our crews. I think over the years there has been a substantial increase in women in our industry. I do actively promote the industry via Geoscience Pathway events and visits to TAFE colleges, but as a general promotion rather than directed especially to women. As it is such an exciting industry it would be fantastic to see more women consider it as a career alternative.

Recently I realised that in our industry we have unique access to women who could perhaps benefit from items our crews can bring to them in remote areas in the globe and even in Australia. This idea is in its preliminary stages, but the goal would be to help women by providing items that can assist them in their daily life.

You have been involved in a number of initiatives that promote women in business. You were a finalist in the 2007 Telstra South Australian Business Women's Awards;

This nomination was a great opportunity to be inspired by women around Australia

in various occupations. It was an honour to be a finalist.

...featured in a book called 'Lounge to Boardroom';

I hope this book can be used by young women starting their career to see how, despite adversity, persistence usually pays off.

...and recently took part in a pilot for the Enterprise Connect program.

This program was a Federal Government trial to assist companies who have taken part in the review move towards implementation of the recommendations. As I do not have a board to answer to I found this process confronting but also empowering.

I also took part in a Path to Vision Trek to assist Young Business Leader Samantha Badcock raise money for the Royal Society for the Blind. The trek was three days and included camping, something of a challenge for me, but also an opportunity to spend time with other business leaders and Duncan Chessell as our inspirational guide.

Can you tell us about your reaction to being a role model for women in business?

I am not really comfortable being a role model for women in business, perhaps I am a role model in persistence and giving things a go. All mothers know there is a huge amount of juggling to be a good worker and mother and I am continually striving to do better at each but could not give up either.

What do you see as the key challenges for geophysics contractors in the future?

Harsher environments, deeper exploration and new technology are all challenges we can't wait to get into. Lack of trained geophysicists is a constant issue. Retaining quality staff through the boom and bust cycle is always problematic, and likewise allowing for a sustainable quality of personal life despite extensive time away from home.

There is an increasing need for innovations that reduce our environmental and cultural impact on the areas we work in, and to remain competitive, we need to bear the cost of innovation and purchasing of up to date equipment.

As an employer of geophysicists, how well do you think we are preparing young geophysicists for a career in our industry? Broadly speaking, are the graduate geophysicists of today well prepared by their university training?

How do you prepare someone for work, can it all be done at University or can it be done from the beginning by parents and friends? I feel our young geophysicists certainly have all the technical knowledge and understanding required for a graduate geophysicist. The things that make these geophysicists fantastic employees are enthusiasm and initiative, which will take them much further and prepare them much better for the challenging life of a geophysicist.



Kelly Keates (right) with Mike Hatch and Lachlan McDonald near Elliston, South Australia for CSAMT/AMT survey.