# ASEG-PESA 2013: 23rd International Geophysical Conference and Exhibition 11–14 August 2013, Melbourne, Australia

The Melbourne Conference Organising Committee is very pleased to announce that this conference will be jointly hosted by ASEG and PESA.

We have secured a booking with the Melbourne Conference and Exhibition Centre (MCEC): 'the centrepiece of Melbourne's new South Wharf development'.

The Professional Conference Organiser selected by the committee is Arinex. We will be dealing with locals based in a Melbourne office and accessing Arinex's national network of in-house specialist services.

The committee will be inviting industry experts to deliver keynote papers to cover topical and important subjects and we will be encouraging case history papers that demonstrate the application of exploration geophysics, particularly those relevant to our theme of the 'eureka moment'. Any members who are willing to help in reviewing submitted papers are

invited to contact Mark Dransfield (mdransfield@fugroairborne.com.au).

A reminder: the theme for ASEG-PESA 2013 is 'The Eureka Moment' capturing the quest for discovery, insight and learning, but also with a subcontextual nod to the golden riches of Victoria's past.

The committee will also be inviting sponsors and exhibitors to join us in making this conference a success and are working on developing attractive sponsorship and exhibition packages.

Expressions of interest may be registered through the conference website: www. aseg-pesa2013.com.au.

Suzanne Havdon Publicity Subcommittee Chairman



# **UPCOMING EVENT**

The WA Branch of the Australian Society of **Exploration Geophysicists** 

presents

# A Practical One-Day Workshop on Airborne Electromagnetics

Targeting geologists and geophysicists, this event will be a one-day seminar series focussed on practical nearsurface and mineral exploration applications of airborne electromagnetics. It will include practical theory, case studies and a review of recent and future developments.

## WHO SHOULD ATTEND

## WHEN & WHERE

- Practising geophysicists
- November 7<sup>th</sup>, 2012
- Exploration geologists - Students

**City West Function Centre** 45 Plaistowe Mews, West Perth registration details to follow

For further information contact Anne Tomlinson (anne@sgc.com.au) or Chris Wijns (Chris.Wijns@fgml.com) Sponsorship available

# ASEG response to UNCOVER Exposure Draft

The following is a letter to Fiona Leves of the Australian Academy of Science, representing the ASEG in response to the Exposure Draft of 'Searching the deep Earth: a vision for exploration geoscience in Australia'. The reader may view the UNCOVER draft in the 'science policy' section of the Academy's web portal: www.science.org.au. In addition, the reader is invited to recap the four initiatives outlined in the previous issue of Preview (see Issue 158, p. 20) and the introduction by the ASEG President, Kim Frankcombe, to this letter within the President's Piece of this issue. -Ed

31 May 2012

Dear Fiona,

Thank you for your invitation to the ASEG to comment on 'Searching the deep Earth: a vision for exploration geoscience in Australia'.

The draft sets out a plan to map the geology of Australia where it is obscured by thick cover rocks. As such it will

focus on a large part of Australia where the potential for resources and energy is largely unknown. Should it succeed, the UNCOVER initiative could contribute significantly to the economic well-being of the country.

Within Australia, the role of government geological surveys is to bring new insights into the prospectivity of new areas, and to open them up for exploration by the private sector. The ASEG notes that the UNCOVER initiative is already bringing a focus to the work of the geological surveys, CSIRO and to the programs of some of Australia's leading academic researchers.

The Academy is therefore to be commended for sponsoring the UNCOVER initiative.

Mapping geology under cover is a role that will depend significantly on geophysical expertise. The UNCOVER document acknowledges the role that geophysical data sets will have to play. Geophysical techniques are also the first to be applied to areas under cover during exploration.

The ASEG is the professional society representing the interests of geophysicists in Australia. Our members come from all sectors: industry, government and academic. They will be responsible for putting into practice the scientific disciplines that will be used in the program set out in the UNCOVER initiative, and also in any subsequent exploration under cover.

The ASEG feels sure that the UNCOVER initiative will lead to new insights into the geology of areas under cover that are largely under explored. As a consequence, they are under-drilled and under-sampled geologically. UNCOVER may therefore trigger some industry interest at the area selection stages of their exploration strategy.

However, the ASEG is concerned that as it is currently written, the UNCOVER



Program lacks a particular research focus that will allow industry to explore at the mineral system and prospect scales.

The Australian industry has been successful at exploring under cover. Exploring under cover is expensive, and in the past has largely been done by or with the assistance of major companies that had both the financial capacity and staff resources to explore under cover, persevere and succeed.

However, the industry has changed, with majors pulling out of research and development and relying more on purchasing deposits from small and medium explorers. Small and medium explorers do not have access to large budgets.

Initially exploration under cover must be conducted by using geophysical tools. Only when a drill hole intersects the rocks will the geology and its chemistry be known. Targeting the drill will be done using geophysical anomalies. The anomalies will probably be subtle because of the depths of the targets. Knowing what anomalies to drill will be essential because the drill holes will have to be deep and therefore expensive.

Geophysical tools have been used in resource exploration for decades, and the industry has been successful in developing more sensitive and accurate data gathering tools, data processing algorithms and interpretation tools. The ASEG believes that the gaps that exist in the research set out in the UNCOVER document are: (i) at the regional scale, research that works out how to predict with confidence the geology under cover from regional geophysical data sets; and (ii) the reverse case at the mineral system scale, of turning geological models of mineral systems into models of physical parameters that can be used predictively under cover. These can be interpreted in a sentence here and there, but are not presented coherently and therefore may not in fact be what is intended.

Being able to turn geological knowledge into predictive geophysics at the mineral system scale is very important because empirical exploration under cover is prohibitively expensive, and is not given a priority today and will not be given a priority in the future in Australia over exploring more cheaply in other countries.

Turning geological knowledge into predictive geophysics is an area of

research that is beyond the capacity of any exploration company to fund and get returns on its expenditure. It is not a specifically defined role for the geological surveys or CSIRO. It is not undertaken as a coherent program in any university centre of excellence, or across any group of universities. It is an area of market failure.

No systematic, mineral system-based research into physical properties of ore systems based on geological models that can be used predictively by the industry, and especially by small and medium explorers, is being done in Australia. It is not a focus for the Deep Exploration Technologies CRC. It was addressed partly in the former Predictive Mineral Deposits CRC. However, results there were incomplete and not immediately available to the industry as a whole, and initially only to company sponsors of the CRC. As the results reach the open scientific literature they are not in a coherent form useful to small and medium companies.

Therefore, if the UNCOVER initiative is to reach its full potential in stimulating exploration under cover, as implied in its title, it should include a theme that

to your

# Chateau Les Feet .....?

## Research

#### News

bridges the gap between geological knowledge of mineral systems and physical property models in a way that can allow predictive exploration using geophysics to target drilling. Only then will the research set out in the fourth theme – The National Distal Footprints Map – be able to prosper. Should the theme we are recommending be included, it is likely to bring a focus to much of the relevant research presently undertaken in Australia in what is presently a disjointed and often invisible way.

It might also help address another concern of the ASEG that is relevant to the future success of UNCOVER, that of declining numbers of geophysicists being educated in Australia, particularly as our national stock of senior geophysicists ages.

The ASEG notes that in addition to the four themes, or maps, set out in the exposure draft for UNCOVER, the original Theo Murphy Think Tank recommended A National Exploration Research Network and an Education and Technology Transfer Program, but these are missing in the UNCOVER exposure draft. Should these be re-instated, they would go some way to addressing the society's concerns. However, to properly address the gaps described above, the research network would have to be directed to mission-driven rather than curiosity-driven research to ensure relevance.

In summary, the UNCOVER initiative will stimulate interest in areas of Australia under cover, but it will not help exploration beyond the initial area selection stage. Parallel research is needed firstly to ensure that the under cover maps are reliably predictive, and secondly to turn new insights derived from the undercover maps into exploration success and economic benefits for the nation. The current CRC model does not seem to be filling this gap.

If you wish to discuss these comments further, please contact either myself or Barry Drummond.

Yours sincerely, Kim Frankcombe President, Australian Society of Exploration Geophysicists



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# Update on Geophysical Survey Progress from the Geological Surveys of Queensland, Western Australia, Northern Territory and New South Wales (information current at 15 July 2012)

Tables 1 and 2 show the continuing acquisition by the States, the Northern Territory and Geoscience Australia of new gravity, airborne magnetic and radiometric data of the Australian continent. All surveys are being managed by Geoscience Australia (GA).

#### Table 1. Airborne magnetic and radiometric surveys

Survey name	Client	Contractor	Start flying	Line (km)	Spacing AGL Dir	Area (km²)	End flying	Final data to GA	Locality diagram ( <i>Preview</i> )	GADDS release
South Officer 2 (Waigen – Mason)	GSWA	Thomson	28 Jun 10	113000	400 m 60 m N–S	39890	100% complete @ 5 Jan 11	6 Jun 12	148 – Oct 10 p24	Data released via GADDS on 28 June 2012
Grafton – Tenterfield	GSNSW	GPX	16 Jun 11	100 000	250 m 60 m E–W	23 000	100% complete @ 6 Nov 11	11 Jul 12	151 – Apr 11 p16	QA/QC of final data in progress
West Kimberley	GSWA	UTS Geophysics	29 Jun 11	134000	800 m 60 m N–S Charnley: 200 m 50 m N–S	42 000	100% complete @ 11 Dec 11	TBA	150 – Feb 11 p20	TBA
Perth Basin North (Perth Basin 1)	GSWA	Fugro	11 Jun 11	96 000	400 m 60 m E–W	30 000	100% complete @ 18 Dec 11	3 Jul 12	150 – Feb 11 p20	QA/QC of final data in progress
Perth Basin South (Perth Basin 2)	GSWA	Fugro	22 Mar 11	88 000	400 m 60 m E–W	27 500	100% complete@ 7 April 12	TBA	150 – Feb 11 p20	TBA
Murgoo (Murchison 1)	GSWA	Thomson	28 Feb 11	128000	200 m 50 m E–W	21 250	100% complete @ 16 Nov 11	25 Jun 12	150 – Feb 11 p20	QA/QC of final data in progress
Perenjori (Murchison 2)	GSWA	GPX	21 Oct 11	120000	200 m 50 m E–W	20 000	100% complete @ 12 Jan 12	1 Jun 12	150 – Feb 11 p21	Data released via GADDS on 21 June 2012
South Pilbara	GSWA	GPX	13 May 12	136000	400 m 60 m N–S	42 500	22% complete	TBA	150 – Feb 11 p21	TBA
Carnarvon Basin South (Carnarvon Basin 2)	GSWA	GPX	29 Mar 12	128000	400 m 60 m E–W	40 000	100% complete @ 15 Jun 12	TBA	150 – Feb 11 p21	TBA
Corrigin (South West 2)	GSWA	GPX	12 Jan 12	120 000	200 m 50 m E–W	20 000	100% complete @ 29 Jun 12	25 Mar 12	150 – Feb 11 p22	Data released via GADDS scheduled on 26 July 2012
Cape Leeuwin – Collie (South West 3)	GSWA	Fugro	25 Mar 11	105 000	200/400 m 50/60 m E–W	25 000	100% complete @ 23 Dec 11	TBA	150 – Feb 11 p22	ТВА
Mt Barker (South West 4)	GSWA	GPX	24 Apr 11	120000	200 m 50 m N–S	20 000	22.2% complete @ 11 Mar 12	TBA	150 – Feb 11 p22	Survey resumed 11 February 2012
Galilee	GSQ	UTS Geophysics	11 Aug 11	125959	400 m 80 m E–W	44 530	100% complete @ 10 Jun 12	TBA	151 – Apr 11 p15	TBA
Thomson West	GSQ	Thomson	14 May 11	146 000	400 m 80 m E–W	52 170	100% complete @ 20 May 12	TBA	151 – Apr 11 p15	ТВА
Thomson East	GSQ	Thomson	14 May 11	131100	400 m 80 m E–W	46730	100% complete @ 20 May 12	TBA	151 – Apr 11 p16	TBA

#### Table 1. Continued

Survey name	Client	Contractor	Start flying	Line (km)	Spacing AGL Dir	Area (km²)	End flying	Final data to GA	Locality diagram ( <i>Preview</i> )	GADDS release
Thomson Extension	GSQ	UTS Geophysics	22 Jun 11	47777	400 m 80 m E–W	16400	100% complete @ 10 Aug 11	TBA	151 – Apr 11 p16	QA/QC of final data in progress
Thomson North	GSQ	Thomson	11 Mar 12	21 900	400 m 80 m E–W	7543	100% complete @ 20 May 12	TBA	157 – Apr 12 p32	ТВА

TBA, to be advised.

#### Table 2. Gravity surveys

Survey name	Client	Contractor	Start survey	No. of stations	Station spacing (km)	Area (km²)	End survey	Final data to GA	Locality diagram ( <i>Preview</i> )	GADDS release
East Amadeus	NTGS	Atlas Geophysics	26 May 12	7560	4 km regular with infill at 2 km and 1 km	101 090	66% complete @ 8 Jul 12	TBA	158 – Jun 12 p22	TBA
Esperance	GSWA	ТВА	TBA	TBA	2.5 km and 1 km along roads/tracks	TBA	ТВА	TBA	158 – Jun 12 p23	TBA
West Murchison	GSWA	TBA	TBA	TBA	2.5 km	TBA	TBA	TBA	158 – Jun 12 p22	TBA

TBA, to be advised.

# Queensland Greenfields magnetic and radiometric surveys

Collection of the airborne magnetic and radiometric data for the Thomson and Galilee surveys is now complete. The data collection for the Galilee survey was completed on 9 June 2012, and the Thomson survey was competed on 21 June 2012. The data for both these surveys is currently undergoing processing and quality checking. This data is expected to be released to the public in September 2012.

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# Report from the Australian Geoscience Council (AGC)



Dr Neil Williams PSM Honorary Professorial Fellow, University of Wollongong President: Australian Geoscience Council President: 34th International Geological Congress, Brisbane, 5–10 August 2012

Members of the Australian Geoscience Council include the following bodies: Association of Applied Geochemists; Australasian Institute of Mining and Metallurgy; Australian Geoscience Information Association; Australian Institute of Geoscientists; Australian Society of Exploration Geophysicists; Geological Society of Australia; International Association of Hydrologists (Australian Chapter); and Petroleum Exploration Society of Australia.

The incumbent President, Dr Neil Williams, reviewed the accomplishments of the Australian Geoscience Council (www.agc.org.au) during the past 12 months in his report to the Annual General meeting in June 2012. The following text details the key activities of the AGC during 2011–12 as reported to the AGC AGM.

#### Introduction

The period from 2011 to 2012 has been another prosperous year for the energy and mineral resource sectors of the Australian economy, unlike the other parts of the economy that are slowing in response to continuing concerns about the state of the global economy, particularly in the Euro-zone component. As this Annual Report is being written, some pessimism is beginning to creep into the Australian resource sector due to a number a factors. These include a possible slowing down of growth in the Chinese economy, the introduction of the Carbon Tax in July 2012, recent Federal Government antipathy towards mining and petroleum companies, labor shortages that are slowing planned projects, and infrastructure bottlenecks that are threatening Australia's international competitiveness.

Despite these concerns, there remains a strong demand for geoscientists in not only the resources industry, but also in the public sector where geoscientists are not only needed for resource-based activities, but also for environmental, engineering, water and hazard management.

# 34th International Geological Congress (IGC)

The IGC is the major focus of AGC activities and promises to be the biggest and most impressive geoscience event ever seen in Australia. As the Australian Geoscience Council is the legal entity for the Congress, the work of the Council over the last year has become increasingly focussed on ensuring that the Congress is successful, both financially and scientifically. Details are available at www.34igc.org.

With only 60 days left to the Congress we now have for the first time a good indication of the size and content of the Congress. Author registration closed on 31 May and 3168 authors had registered by that date. Total registrations now stand at 4856 indicating the final number of registrants at the Congress will be in the low 5000s. This outcome is well above the Council's initial estimates and, provided the IGC budget is carefully managed over the next 2 months, we can anticipate a good financial outcome. As well as a diverse and interesting scientific program having an emphasis on Australian resources, the Congress will also have a large and vibrant exhibition featuring 129 exhibitors from universities, companies and government agencies from around the world, and a range of pre- and post-congress field excursions that will showcase Oceania's amazing geological features. With the scientific program about to be released, all Australian geoscientists are encouraged to examine the wide range of exciting and relevant presentations over the 5-day event and to make the decision to attend.

A lot of work has gone into reaching this positive point in the almost decade-long history of the 34th IGC and I would like to thank all the numerous members of the Organising Committee and of its various subcommittees for all their efforts to make the IGC a reality. While reluctant to single out individuals for special mention, the President did acknowledge the huge effort being put in by IGC Secretary General Ian Lambert, the IGC Deputy Secretary General Paul Kay, and the IGC Treasurer Miriam Way. The AGC also appreciates all of the efforts of our Professional Conference Organiser, Carillon Conference, led by Ashley Gordon. Ashley and his colleagues have been successful in obtaining the majority of our Congress sponsorship, which now totals a little under \$1 million in value, and they have driven a long but fruitful IGC promotion effort. Their advice and conference administration experience is proving invaluable and will be critical during the last hectic days leading into the Congress itself.

# The AGC video series promoting Australian Geoscience

Building on the AGC Touring Speaker idea developed last year, the Council took a decision during the year to embark on the development of a series of educational and promotional videos under the theme of 'Geoscience in Australia'.

The first of these was recorded on 19 January 2012. The presenter was Professor Geoffrey Blainey and he spoke on the subject of how Australia, past and present, has been shaped by mineral discoveries. Professor Blainey is a most engaging and interesting speaker and he was very ably supported by well-known media personality Peter Couchman, who introduced the video and asked lots of interesting questions during the relaxed and informal presentation. The video is an excellent introduction to Council's video series and can be viewed at: www. agc.org.au/index.php/geoscience-inaustralia. The video will also be aired in the Geotheatre at the 34th IGC, along with many other videos of interest to a wide range of geoscientists. During the presentation Professor Blainey touches on a number of themes that the Council hopes to develop in more detail in subsequent recordings.

## AGC newsletter GeoEdLink

In May the Council reappointed Greg McNamara to the position of Editor of the AGC e-newsletter *GeoEdLink* (see www.geoed.com.au/AGCnletter/archive. html). Greg continued his excellent work in producing *GeoEdLink*, with three editions released in 2011 and one to date in 2012, all containing valuable educational resources for high school science teachers as well as interested members of the public.

# Australian Curriculum, Assessment and Reporting Authority (ACARA)

Following a lot of activity with ACARA last year, little has taken place this year. However, the Council was advised by ACARA on 10 May this year of the release of the draft senior secondary Australian curriculum for English, Mathematics, Science and History, and we have been invited to comment on the draft, which can be viewed at: http:// consultation.australiancurriculum.edu.au/.

The draft is open for discussion until 20 July 2012 and the Council, through Past President Michael Leggo, will be providing comments on the document.

# The Australian Learning and Teaching Council

Just after Dr Williams was elected President of the AGC, he became involved in the committee 'Science Discipline Reference Group', which was part of a project being undertaken by the Australian Learning and Teaching Council investigating Learning and Teaching Academic Standards for Science (LTAS) across Australian universities. The Geosciences were also represented by Dr Ian Fitzsimons from Curtin University. Ian focused his attention on the learning and teaching side of university science standards while Dr Williams' focus was on the employer's side. Unfortunately, just as the LTAS initiative was getting somewhere, the Federal Government shut it in early 2012. However, all was not lost as Ian Fitzsimons continued the good work of the Group through a university geoscience initiative called Geoscience Learning and Teaching. The Council agreed to support Ian's work in April 2012, which is now being progressed with the support of a small group of volunteers from member Societies. This committee will follow the guidelines provided by a recently created Australian Government

agency called the Tertiary Educational Quality and Standards Agency (TEQSA) that is continuing the work started under LTAS, with the aim of establishing standards for tertiary Earth Science teaching.

# Teacher Earth Science Education Program (TESEP)

The AGC made a one-off contribution to TESEP to support two activities. The first is enhanced promotion and accessibility to TESEP as it moves into Stage 2. The second is support for the development of excursion descriptions to enable the ESWA Year 11 and 12 Earth Science textbook to be used as a national text. TESEP is strongly supported by many of the AGC member societies and we encourage the continuation of that support.

### International Earth Science Olympiad (IESO)

The AGC provided financial assistance to four high school students to help them represent Australia at the IESO held in Italy. The students provided a report on their experience for inclusion in society newsletters.

### Concluding remarks

In closing his report, Dr Williams expressed his thanks to Past President Michael Leggo, Chairman Mike Smith, Secretary Brigette Hendersonhall and the team at the AusIMM, who manage all the Council's financial affairs.

Dr Neil Williams



# GGSSA – Ground Geophysical Surveys Safety Association



Ground Geophysical Surveys Safety Association (GGSSA) was formed in 2011 with the aim of developing an Australian Standard for high-voltage geophysical surveys. The formation of the Association was in response to NSW Government concerns around IP surveying and the failure to adhere to NSW State Legislation and Australian Standards AS/NZ 30000 and AS3007, particularly around electrical protection, and isolation and insulation.

The aim of the association is to:

• promote the safe operation of ground geophysical surveys

- develop a set of recommendations for the safe operation of ground geophysical surveys
- have these recommendation accepted by Standards Australia
- assist in getting the standard accepted in each states' legislation.

The founding members of GGSSA are Fugro Ground Geophysics, GPX Surveys, Search Exploration Services and Zonge.

A draft of the Standard for IP surveys has been completed and is presently being reviewed by electrical engineers. The next stage, in August, is to circulate the draft to GGSA members for review before final submission to Standards Australia.

The Standard, based on robust risk management principles, will provide guidance in the following key areas:

• survey design and risk analysis

Not long now

- training and competency
- equipment inspection and maintenance

- · equipment safety features
- loop and electrode safety
- audit structure
- safety sign register
- fuel storage, handling and decanting

General Announcements

News

- insulation for electrical ground geophysical surveys
- geophysical transmitter operational procedure.

If you are an interested in becoming a member, please contact GGSSA (info@ ggssa.org.au). Membership of GGSSA will be open to all Contractors, Government Agencies and Mining Companies.

The Association plans to develop further standards for high-risk geophysical surveys. Members can nominate to join the Technical Committee, which will be tasked with drafting appropriate Standards.

Katherine McKenna

# 2012 ASEG Wine Offer Coming Soon

Visit www.aseg.org.au from 1st October for details