

It ain't half hot Mum!

I'm writing this as Perth looks like finishing a couple of weeks of temperatures in the high 30s including 8 days straight with maxima over 40°C. Eastern Australia, particularly Tasmania, appears to be on fire and I'm told that it is over 48°C in Oodnadatta. Hopefully, where ever you are, you managed to find a way to keep the beer cold and the barbeque cooking.

Have you paid your membership dues yet? Keen to avoid a repeat of last year, when he was threatened with excommunication for late payment, Jim Allender has done so. Twice! Unfortunately, we can't yet handle payments in advance Jim, but we'll work on it. The carrot of early payment discount has expired, but now we are counting down to the stick of service withdrawal so if you forgot to pay on time, get in quick before you stop receiving membership benefits.

The New Year sees a renewal of State Branch Committees. To all those retiring from committees I take this opportunity to thank you on behalf of the society for your past efforts. To those joining, particularly those joining for the first time, welcome to the ASEG committee structure. I am confident you will get a lot from your involvement and find that time spent working for the committees is rewarded both personally and professionally, with interest. The Federal Executive is also looking towards the start of a new committee year with the society's AGM to be held in Brisbane on 17 April 2013. A call for nominations for positions on the executive will go out shortly so if you are curious about what would be involved or keen to pitch in, contact either myself or one of the

other members of the executive and find out what is expected. I look forward to seeing as many of you as possible at the AGM and enjoy some of Henk's artisanal handcrafted, gourmet canapés, which he assures me are a requirement for any ASEG function held in Brisbane.

The Victorians are getting to the pointy end of their conference preparations and I am sure that the next eight months will disappear beneath their feet as they run to turn on the 23rd International Geophysical Conference and Exhibition in August. For the rest of you, start planning your travel to Melbourne now. Registration is already open for those who want to pay before their company undergoes its next corporate restructure. It is shaping up to be another great conference so don't miss out.

In the month prior to the Melbourne Conference, the first joint Pacific conference focussing on Near Surface geophysics is planned for Beijing. The moniker 'Near Surface' is a grey one and its meaning varies depending on who you talk to. The recent consensus on the SEGMIN forum was that it refers to geotechnical, environmental and archaeological surveys. However, there were some within the SEG that view it as almost anything other than production reflection seismic for oil and gas. The ASEG have been keen to try and focus the joint Pacific Near Surface Conference towards the geotechnical, environmental and archaeological end of the spectrum and to this end have volunteered Koya Suto along with Mike Hatch, Binzhong Zhou and Geoff Pettifer to help. In doing this we hope to build a high quality, specialist conference focussing on solving the problems this

group and their clients deal with daily rather than having a grab bag for talks that don't involve 3-D seismic for oil exploration. The conference will tour the Pacific on a two year cycle and this could be an opportunity to build a great specialist conference in our region so I would encourage those of you working in the geotechnical, environmental and archaeological fields to get involved. In case that might sound as if I am suggesting you don't consider presenting through the ASEG, I'm not, please do! It is just that for the ASEG, SEG and EAGE these fields struggle for critical mass. This joint conference, supported by the ASEG, offers the opportunity to gain that critical mass and provide you with an event where you can drink from a fire hydrant of knowledge, rather than trying to look busy chasing an olive around a martini glass.

Happy hunting.



Kim Frankcombe
kfrankcombe@inet.net.au

Full waveform IP and EM processing comparison

How did Figure 1 become Figure 2?

Increasingly IP and EM instrumentation are recording full waveform or streaming data that is stacked and binned to produce a single decay sampled at 10–20 points, or a phasor sampled at five or six frequencies. The stacking and binning process has the potential to change the data significantly and is generally poorly documented and something of a grey area. In an attempt to start a discussion on how it is being done and muster

ideas on how we might do it better, I am compiling a suite of real world full waveform time series data and invite anyone with an interest in the field, particularly instrument manufacturers and airborne EM contractors, to use their algorithms to process the data and submit their results.

My intention is to present the results in a standard format for comparison in a discussion poster at the next ASEG Conference in Melbourne (August 2013).

Wrapped into a PDF file and made available to interested geophysicists globally, the trial data set could act as a future standard test bench for new algorithms.

I've asked several groups who are currently collecting these data and already have a healthy quorum of contractors, consultants and practitioners who are prepared to take part in a comparison of their results from a test data set.

The aim of the exercise is to ascertain the size of the set of answers and to initiate a discussion about how we might do it better – not to belittle the instrument manufacturer or contractor who produces what is perceived as a poor result. I am sure that regardless of the results of the comparisons, all concerned will be keen to reassess their own methodology. This comparison follows in the footsteps of the low latitude reduction to the pole comparison and seismic data processing comparison held at ASEG conferences in past years. As with these comparisons the data set will be authentic and not synthetic. Thus, there is no known answer to measure responses against. However, there will be repeat readings at the same station included in the mix to get some measure of consistency. The absence of an actual answer should steer the focus of discussion from correctness of result to differences and methods, thereby remove barriers to participation for those with thin skin. The comparison would form two parts: stacking and binning results; and a description of methodology. The second part might be a hurdle too high for some and so while desirable that part would not be a requirement of participation. However, before opting for silence on the method, I'd ask you to consider an open discussion on how we might improve each of our own methods, rather than simply protecting our private 'black box' methods regardless of their performance. A great chef will always share their recipes, because they know it takes more than a recipe to make a great meal.

If you are interested in participating please contact me for download details and response formats.

Kim Frankcombe
kim@exploregeo.com.au
Tel: (08) 6201 7719

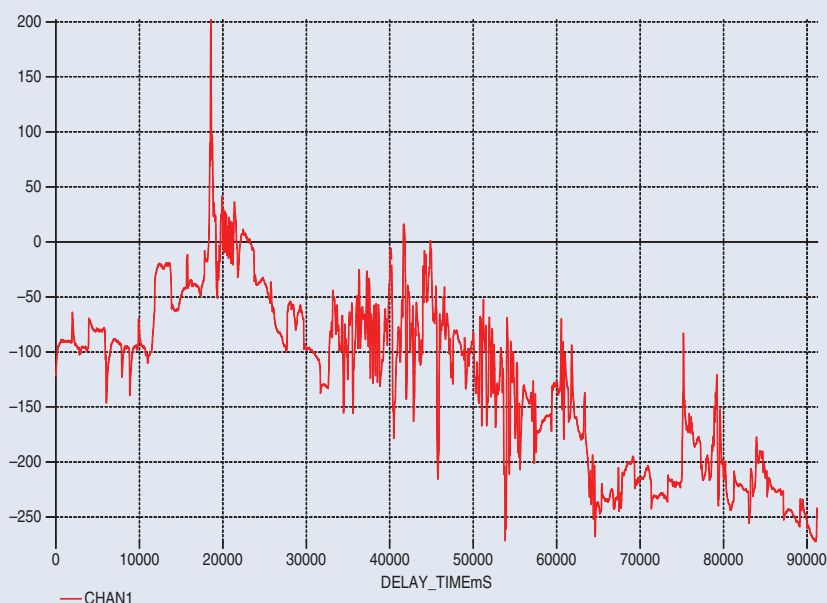


Fig. 1. Raw IP time series data for 11 full transmitter cycles at 0.125 Hz.

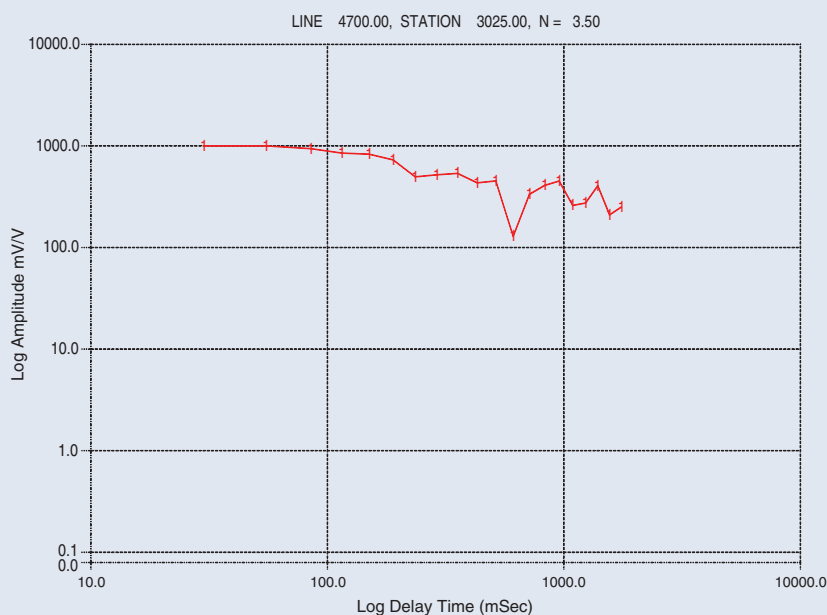


Fig. 2. A stacked and binned decay resulting from the data in Figure 1.

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SYSTEMS ACQUISITION LICENSING PROCESSING IMAGING

ASEG Federal Executive 2012–13

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ASEG website update: www.aseg.org.au

The new ASEG website has been live for a few months now; thank you to those who submitted positive feedback. Unfortunately, we continue to have ups and downs as we work to improve it – I apologise for all the gremlins. We are working towards making this site an invaluable resource for our members. Please make it your homepage and continue to monitor and suggest improvements for the future. Don't hesitate to contact me at asegregwebmaster@gmail.com with your problems, feedback or suggestions.

Carina Kemp
ASEG Webmaster

New members

The ASEG extends a warm welcome to 24 new individual members to the society (see table). In 2012, the Federal Executive approved 14 new members at the 29 November FedEx meeting and 10 in December via email.

Name	Organisation	State/Country	Member grade
Sahereh Aivazpourporgou	Monash University	VIC	Student
Heather Carey	Fugro Airborne Surveys	WA	Active
Simon Cook	Macquarie University	NSW	Student
Anthony Cornish	Macquarie University	NSW	Student
Marina Den Hartog	Frogtech Pty Ltd	TAS	Associate
Batbaatar Erdene	Oyo Tolgoi LLC	Mongolia	Associate
David Burnham Farquhar-Smith	Fugro Ground Geophysics	WA	Active
Steven Frank Johnson	GroundProbe Geophysics	QLD	Active
Aurore Joly	St Barbara	WA	Active
Mohammad Jarad Khoshnavaz	Curtin University	WA	Student
Jai Kinkela	HiSeis	WA	Active
Jan Klein		Canada	Retired
Kristian Madaschi		WA	Active
James Meintjes	Macquarie University	NSW	Student
Surya Pachhai	ANU	ACT	Student
Cameron Perks	Macquarie University	NSW	Student
Zenon Platritis	Curtin University	WA	Student
Martin Robert	HiSeis	WA	Active
Peter Maurice Trehwella	University of Melbourne	VIC	Student
Jarrad Lachlan Trunfull	Rio Tinto Iron Ore	WA	Active
Stephanie Tyiasning	University of Adelaide	SA	Student
Fiona Wedenig	GPX Surveys Pty Ltd	WA	Associate
Ian Wilson	Macquarie University	NSW	Student
Phillip Edward Wynne	Geoscience Australia	ACT	Active

Nominate a colleague for an ASEG Honour or Award for 2013

An important role of the ASEG is to acknowledge the outstanding contributions of its individual members both to the profession of geophysics and to the ASEG. The society has a number of different Honours and Awards across a range of categories. The next Awards are scheduled to be presented at the ASEG Melbourne Conference 11–14 August 2013.

All ASEG members as well as State and Federal executives are invited to nominate those they consider deserving of these awards. A list of the various available awards is set out below as well as a 'Nomination Procedure'.

Some awards carry considerable prestige in the eyes of the ASEG and therefore require detailed documentation to support the nomination. Please contact the Committee Chairman, Andrew Mutton, if you require further guidelines on what is required.

ASEG Gold Medal

For exceptional and highly significant distinguished contributions to the science and practice of geophysics, resulting in wide recognition within the geoscientific community. The nominee must be a member of the ASEG.

Honorary Membership

For distinguished contributions by a member to the profession of exploration geophysics and to the ASEG over many years. Requires at least 20 years as a member of the ASEG.

Grahame Sands Award

For innovation in applied geophysics through a significant practical development of benefit to Australian exploration geophysics in the field of instrumentation, data acquisition, interpretation or theory. The nominee does not need to be a member of the ASEG.

Lindsay Ingall Memorial Award

For the promotion of geophysics to the wider community. This award is intended for an Australian resident or former resident for the promotion of geophysics (including but not necessarily limited to applications, technologies or education), within the non-geophysical community, including geologists, geochemists, engineers, managers, politicians, the media or the general public. The nominee does not need to be a geophysicist or a member of the ASEG.

Early Achievement Award

For significant contributions to the profession by way of publications in Exploration Geophysics or similar reputable journals by a member under 36 years of age. The nominee must be a member of the ASEG and have graduated for at least 3 years.

ASEG Service Awards

For distinguished service by a member to the ASEG, through involvement in and contribution to State Branch committees, Federal Committees, Publications or Conferences over many years. The nominee will have been a

member of the ASEG for a sustained period of time. All nominations will be considered for the award of an ASEG Service Certificate. Where the nomination details outstanding contributions to the shaping and the sustaining of the Society and the conduct of its affairs over many years, consideration will be given to the award of the ASEG Service Medal to the nominee. Honorary Members are not eligible for nomination.

Nomination procedure

Any member of the Society may nominate applicants. These nominations are to be supported by a seconder, and in the case of the Lindsay Ingall Memorial Award by at least four geoscientists who are members of an Australian geoscience body (e.g. GSA, AusIMM, AIG, IAH, ASEG or similar).

Nominations must be specific to a particular award and all aspects of the defined criteria should be addressed. To gain some idea of the standard of nomination expected, nominees are advised to read past citations for awards as published in *Preview*. If required, pro forma nomination forms are available from the Chairman, Andrew Mutton.

Nominations including digital copies of all relevant supporting documentation are to be sent electronically to:

Andrew Mutton
Chairman, ASEG Honours and Awards Committee
Email: andrew.mutton@bigpond.com

Application deadline:
Friday 21 June 2013.

Australian Capital Territory

The year 2012 ended in a flurry for the ACT branch. On 4 December 2012, Professor John Close from the ANU's Department of Quantum Science presented a fascinating overview of the potential (pun intended!) future of gravimetry – gravity measurements using cold-atom lasers. John explained the principles of the system that he and his team are developing: from falling atom clumps at less than 10 nK, to measuring mismatches between standing waves. John's expectation is that such instruments will eventually have a sensitivity of $g/g \sim 10^{-10}$, weigh less than 150 kg and be no larger than 75 cm on a side. Developments in this space will no doubt be closely watched by many. A tour of John's lab will be arranged in the near future.

Having met kangaroos and emus at Tidbinbilla Nature Reserve outside Canberra, Dr Rick Miller, SEG Near Surface Honorary Lecturer, gave his presentation 'Near-surface seismic: more than a problem of scale' on 10 December 2012 to an audience of approximately 30. The depth and breadth of the material covered in Rick's presentation is certainly evidence of his 30-odd years of experience in near-surface seismics. Over that time, Rick has lamented the decline in the use of coloured pencils in seismic interpretation, has learned to appreciate surface waves and, as was clear from his presentation, has learnt a thing or two about near-surface seismics. Attendees are no doubt reminding themselves that when it comes to processing near-surface seismic data, noisy data can sometimes be the best data; you can't always assume the same old processing steps, high frequency isn't everything, and topography isn't the only influence on statics.

Our year ended the following day at a Christmas BBQ together with 50 odd ASEG, GSA and AusIMM members and their families. Upcoming events for the start of 2013 include the EAGE course by Jörg Herwanger (WesternGeco Research and Engineering Group) on 'Seismic geomechanics'. The ACT branch AGM is scheduled to take place in the late afternoon/evening of Friday 22 February 2013. The AGM will be followed by a social event for members and their families.

Ron Hackney



South Australia/Northern Territory

The SA/NT branch held its annual Christmas Party at Tusmore Park on Saturday 8 December 2012. A total of 30 people came along to enjoy a splendid barbecue (courtesy Peter Crettenden from Swagabout Tours), a round or two of cricket, and an opportunity to catch up with friends and meet members' families. The weather behaved all afternoon and in what is becoming a tradition the leftover food was donated to hungry Geophysics PhD students.

Our final event for 2012 was held on the 11 December. Dr Richard Miller from the Kansas Geological Survey presented 'Near-surface seismic: more than a problem of scale' as part of the SEG 2012 Near Surface Honorary Lecturer program – 20 people came along to this excellent talk.

We hold technical meetings monthly, usually on a Tuesday or Thursday, at the Coopers Alehouse in Adelaide beginning at 5:30 pm. New members and interested persons are always welcome. For further details, or if you are interested in presenting a talk to the local group, please contact Philip Heath (philip.heath@sa.gov.au). If you are a SA/NT member and are not receiving emails regarding events, please update your details through aseg@casm.com.au.



Richard Miller chats to local ASEG members in Adelaide as part of the 2012 SEG Near Surface HL program.



Beautiful weather for our annual Christmas Party.

Philip Heath

Victoria

Despite the festive season and the holidays it has been a busy month for the ASEG Victorian Branch.

The silly season was already in full swing when we joined our society siblings from PESA and SPE for the annual Christmas luncheon on 5 December 2012 at the Victoria Hotel. Good cheer was had by all, and Simon Davey of Woodside Energy presented 'The influence of geology on soil and their vines and wines' – a subject (with tastings!) much appreciated by all.

The following day, on 6 December 2012, we hosted the 2012 SEG Near Surface Honorary Lecturer Dr Rick Miller from Kansas Geological Survey presenting 'Near-surface seismic: more than a problem of scale' at the Kelvin Club – he attracted a good number of 14 guests. It was a delight and honour

to receive Dr Miller; his friendly affable persona made for an enjoyable evening – not to mention his account of a seismic line through a family home as part of a sinkhole risk assessment! His talk inspired many questions and follow-up conversations over finger foods. Our only regret is that his stay was cut short by his whirlwind tour of Australia. Curiously, famed dinosaur hunter Dr Thomas Rich of Museum Victoria also attended. Coupling his presence with the topic of the talk, I immediately thought of the opening scene in the 1993 film *Jurassic Park*, in which palaeontologists imaged a complete skeleton with a single shot gun source. Alas, Dr Miller's talk didn't offer much hope!

On 16 January 2013 Dr Manika Prasad, 2012 Fall SEG/AAPG Distinguished Lecturer, from Colorado School of Mines presented 'Shales and imposters: understanding shales, organics, and

self-resourcing rocks'. This presentation was a joint noon lunch meeting with our PESA colleagues at The Victoria Hotel and attracted nearly 60 attendees – a very large turn-out for the otherwise quiet month of January.

On 6 February 2013 we will co-host the 'Annual ASEG-PESA-SPE Summer Social' with drinks, nibbles and plenty of networking opportunities at the riverside Terrace@Feddish by Federation Square from 5:00 pm to 7:00 pm. For catering purposes RSVP is mandatory to John Theodoridis, ASEG Victorian Branch secretary, at jthe1402@bigpond.net.au, by COB 1 February 2013.

We look forward to seeing many ASEG Victorian Branch members at this first meeting of the 2013 autumn season.

Ashbjorn Norlund Christensen and John Theodoridis

Notice of Annual General Meeting

The 2013 Annual General Meeting (AGM) of the Australian Society of Exploration Geophysicists (ASEG) will be held in Brisbane on Wednesday 17 April 2013. The venue and time of the AGM will be advised closer to the meeting.

The business of the AGM shall include:

- To confirm the minutes of the last preceding general meeting;
- To receive from the Federal Executive reports on the activities of the Society during the last preceding financial year;
- To receive and consider the financial accounts and audit reports that are required to be submitted to members pursuant to the Constitution and to law;
- To report the ballot results for the election of the new office holders for the Federal Executive; and
- To confirm the appointment of auditors for 2012.

Invitation for candidates for the Federal Executive

In accordance with Article 8.2 of the ASEG Constitution '...The elected

members of the Federal Executive are designated as Directors of the Society for the purposes of the [Corporations] Act.'

The Federal Executive shall comprise up to 12 members, and shall at least include the following four elected members:

- (i) a President;
- (ii) a President Elect;
- (iii) a Secretary; and
- (iv) a Treasurer.

These officers are elected annually by a general ballot of members. Koya Suto was elected as President Elect in 2012 and as such will stand for the position of President.

The following offices are recognised:

- (i) Vice President;
- (ii) the Immediate Past President (unless otherwise a member of the Federal Executive);
- (iii) the Chairman of the Publications Committee;
- (iv) the Chairman of the Membership Committee;
- (v) the Chairman of the State Branch Committees; and

- (vi) Up to three others to be determined by the Federal Executive.

These officers are appointed by the Federal Executive.

Nominations for all positions are very welcome. Please forward the name of the nominated candidate and their respective position, along with the names of two members who are eligible to vote (as Proposers), to the Secretary:

Barry Drummond
c/- ASEG Secretariat
PO Box 8463, Perth Business Centre,
WA 6849, Australia
Tel: +61 8 9427 0838
Fax: +61 8 9427 0839
Email: secretary@aseg.org.au

Nominations must be received via post, fax or email **no later than COB Tuesday 19 March 2013**. Positions for which there are multiple nominations will then be determined by ballot of Members and results declared at the AGM.

e-Book launch of *Geological Interpretation of Aeromagnetic Data*: a joint ASEG–SEG publication

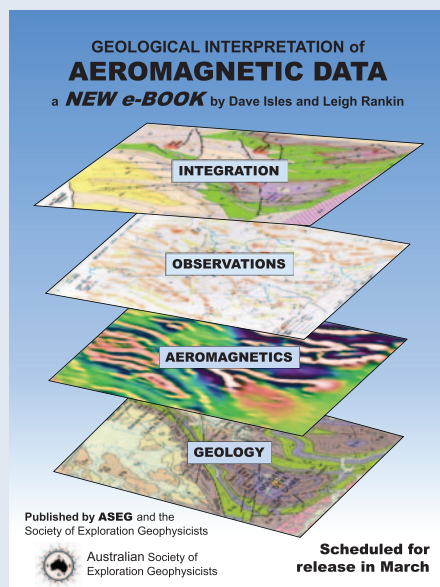
by David Isles and Leigh Rankin



David Isles



Leigh Rankin



It is with much pleasure that I announce the forthcoming publication of *Geological Interpretation of Aeromagnetic Data* by David Isles and Leigh Rankin, an e-book based on both authors' well known workshop on magnetic interpretation. It is to be co-published and co-branded by both the ASEG and SEG and has thus been peer-reviewed by both societies. This book fills a niche between more mathematical treatments such as Rick Blakely's *Potential Theory in Magnetic and Gravity Applications* and overviews such as Lewis Nettleton's *Elementary Gravity and Magnetism for Geologists and Seismologists*. I take this opportunity to acknowledge the considerable time and effort of Lu Pellerin, Ted Bakamjian, Tien Grauch and Alan Reid (for SEG), David Moore and Michael Asten (for

ASEG) and Briana Melideo (for CSIRO Publishing) in guiding the many versions towards the finished work. I am confident that this book will become a benchmark for explorationists and university course work alike. Co-marketing by the SEG will ensure wide exposure through the SEG Book Mart and SEG digital library of geophysical publications.

It is a significant first for the ASEG and SEG to have a joint publication of this type. Aspiring authors scattered around Australia, take note – we would be delighted to hear from you!

Chapter listing

- §1 Introduction
- §2 Basic Physics
- §3 Magnetisation of Rocks
- §4 Structural Analysis from Aeromagnetic Data
- §5 Data Acquisition and Processing
- §6 Observation Methodology
- §7 Integrative Methodology
- §8 Quantitative Techniques and their Role in Interpretation
- §9 Interpretation Strategies
- §10 Aeromagnetic Data in Sedimentary Basins
- §11 Menzies – Comet Vale – Goongarrie Case Study – Archaean Granite – Greenstone Terrain
- §12 Pine Creek – Golden Dyke Case Study – Folded Sedimentary Sequence with Mineralising Granites
- §13 Amadeus Basin Case Study – Palaeozoic Sedimentary Basin with Complex Thrust Margin

Phil Schmidt
ASEG Publications Chairman

Table of contractors

Please note, this is a preliminary table in an early stage of development. Additional detailed information for those listed and future contributors is pending. A web page on the ASEG site devoted to this table is available: www.aseg.org.au/contractor-list; the page is to be developed and maintained by Carina Kemp (Webmaster). Contractors that want to be added to the Table are encouraged to contact either Carina Kemp (Carina.Kemp@ga.gov.au) or Ken Witherly (ken@condorconsult.com). – Ed

Starting in 1964 the Geological Survey of Canada (GSC) undertook an annual tabulation of major advancements in the fields of exploration geophysics and geochemistry; these reviews were entitled ‘Minerals exploration; trends and developments’ or now shortened to ‘Exploration trends and developments’

or simply ‘Trends’. Dr Peter Hood inaugurated these reviews and carried them out in 1991, whereupon Dr Pat Killeen stepped in and has continued the reviews to the present day. The current publisher of the *Trends* is the Northern Miner press, who produces a *Trends* supplement for their PDAC edition (early March) of the Northern Miner weekly paper. In 2007, the Canadian Exploration Geophysical Society (KEGS) took over the role of primary patron for the *Trends* from the GSC, while the Northern Miner remains the publisher. With the formal *Trends* reviews, a series of factual lists (Tables) started to be produced – initially within the *Trends* publication, but later as a separate ‘hand-out’ that complemented the main *Trends* publication. The focus on the Tables was initially on service groups

within Canada that produced geophysical instruments and provided aerial services. Over time this was expanded to include groups from around the world. However, never covered explicitly were groups offering ground geophysical services. In 2012, the management committee for *Trends* decided that the tables should be expanded to include a list of global ground geophysical services companies. The list provided here is the current set of contractors with basic contact information compiled to date. In April 2013, a set of primary capabilities for these companies will be added and made available on the ASEG website along with the current edition of *Trends*.

Ken Witherly

Contractors: Australia	Website	Address
Absolute Geophysics	www.absolutegeo.com.au/	6/9 The Avenue, Midland, WA 6056, Australia
Altas Geophysics	www.atlasgeo.com.au/	U38, 507 Walter Road, East Morley, WA 6062, Australia
ASST (Pty) Ltd	www.asstgroup.com	Unit 6,10 O'Connor Way, Wangara, WA 6065, Australia
Baigent Geosciences Pty Ltd	www.bgs.net.au	7 Owsten Court, Banjup, WA 6164, Australia
Borehole Wireline Pty Ltd	www.borehole-wireline.com.au	PO Box 21, Black Forest, SA 5035, Australia
Daishat Geodetic Pty Ltd	www.daishsat.com/	PO Box 766, Murray Bridge, SA 5253, Australia
Elliot Geophysics Pty Ltd	www.geophysicssurveys.com	PO Box 1307, Booragoon, WA 6954, Australia
Fender Geophysics Pty Ltd	www.fendergeophysics.com.au	Suite 203, 283 Alfred Street, North Sydney, NSW 2060, Australia
Fugro Ground Geophysics	www.fugroground.com	
Gap Geophysics Australia Pty Ltd	www.gapgeo.com/	9/170 Montague Road, South Brisbane, Qld 4101, Australia
GBG Australia Pty Ltd	www.gbgoz.com.au	18 Fennell Street, North Parramatta, NSW 2151, Australia
Geophysical Resources Pty Ltd	www.consultgrs.com.au	PO Box 549, Sumner Park, Qld 4074, Australia
GPX Surveys Pty Ltd	www.gpxsurveys.com.au/	4 Hehir Street, Belmont, WA 6104, Australia
Groundwater Imaging Pty Ltd	www.groundwaterimaging.com	279 Fitzroy Street, Dubbo, NSW 2830, Australia
Haines Surveys Pty Ltd	www.hainessurveys.com.au/	1 Hagan Court, Bullcreek, WA 6149, Australia
Khumsup Pty Ltd	www.khumsup.com/	NA
Moombarringa Geosciences Pty Ltd	www.moombarriga.com.au	Box 1184, West Perth, WA 6872, Australia
Outer-Rim Exploration Services Pty Ltd	www.outer-rim.com.au	42 Christable Way, Lansdale, Perth, WA 6065, Australia
Planetary Geophysics Pty Ltd	enimrac.wix.com/ planetarygeophysics	350 Prince Henry Drive, Toowoomba, Qld 4350, Australia
Quadrant Geophysics Pty Ltd	quadrantgeophysics.com/	PO Box 360, Banora Point, NSW 2486, Australia
Search Exploration Services Pty Ltd	searchex.com.au/	49 William Street, Norwood, SA 5067, Australia
Terra Search Pty Ltd	www.terrasearch.com.au/	PO Box 981, Castletown, Hyde Park, Qld 4812, Australia
Ultramag Geophysics Pty Ltd	www.ultramag.com/	21 Cowmeadow Road, Mount Hutton, NSW 2280, Australia
Vortex Geophysics Pty Ltd	www.vortexgeophysics.com.au	PO Box 3215, Lesmurdie, WA 6076, Australia
Zonge Pty Ltd	www.zonge.com.au	39 Raglan Avenue, Edwardstown, SA 5039, Australia
ZZ Resistivity Imaging Pty Ltd	www.zzgeo.com	6a Hender Avenue, Magill, Adelaide, SA 5072, Australia

Table Continued

Contractors: North America	Website/email address	Address	
Abitibi Geophysics Ltd	www.ageophysics.com	Abitibi Geophysics 1746, chemin Sullivan Val-d'Or, Quebec J9P 7H1 Canada	
Aurora Geosciences	www.aurorageosciences.com/	3506 McDonald Drive Yellowknife, NT X1A 2H1	
Big Sky Geophysics Ltd	www.bigskygeo.com/	PO Box 353 Bozeman, Montana 59771 USA	
Caracle Creek International Consulting Inc.	www.cciconline.com	34 King Street East, 9th Floor Toronto, ON Canada, M5C 2X8	
ClearView Geophysics Inc.	www.geophysics.ca	12 Twisted Oak Street Brampton, ON L6R 1T1 CANADA	
Crone Geophysics Ltd	www.cronegeophysics.com/	Crone Geophysics 2135 Meadowpine Blvd. Mississauga ON L5N 6L5 CANADA	
DGI Geoscience Inc.	www.dgigeoscience.com	119 Spadina Avenue, Suite 405 Toronto, Ontario Canada M5V 2L1	
Discovery Int'l Geophysics Ltd	www.discogeo.com	14342 Geencrest Drive Surrey BC V4P 1M1 Canada	
Dan Patrie Exploration Ltd	dpatrie@inorth.on.ca	PO Box 45, Massey ON P0P 1P0 Canada	
Eastern Geophysics Ltd	www.easterngeophysics.com/	819, Hwy 335, West Pubnico, NS CANADA B0W 3S0	
EM Pulse Ltd	www.empulse.ca/	EMPulse Geophysics Ltd PO Box 968 Dalmeny, SK., Canada S0K 1E0	
Frontier Geosciences Inc.	www.frontiergeo.com/	237 St Georges Ave. North Vancouver, B.C. V7L 4T4 Canada	
Geophysics GPR International Ltd	www.geophysicsgpr.com/	2545 Delorimier Longueuil (Québec) Canada J4K 3P7	
Géophysique TMC	www.geotmc.com		
Geosig Inc.	www.geosig.ca/	3700 boulevard de la Chaudière Bur. 202 Sainte-Foy, Québec Canada, G1X 4B7	
Geotronics Consulting Inc.	www.geotronics.ca	Geotronics Consulting Inc.6204 125th Street Surrey, B.C.V3X 2E1	
Hayles Geoscience Surveys Ltd	www.haylesgeoscience.ca	511 Robinson Ave., Selkirk, MB R1A 1E5 Canada	
Koop Geotechnical Services Inc.	Dave Koop-koopgeo@gmail.com	Koop Geotechnical Services Inc. Box 164 Flin Flon, MB, R8A 1M7	
Lamontagne Geophysics Ltd	www.lamontagnegeophysics.com/	115 Grant Timmins Drive Kingston ON Canada K7M 8N3	
Matrix GeoTechnologies Ltd	www.matrixgt.com/	2311-7 King Street East Toronto ON, M5C 3C5	
MEG Systems Ltd	www.megsystems.ca/	#5, 27 Silver Springs Drive NW, Calgary, Alberta Canada T3B 4N3	
MWH Geo-Surveys Ltd	www.mwhgeo.com/	3104 - 30th Avenue, Suite 388 Vernon, BC Canada V1T 2C2	
Pacific Geophysics	Paul Cartwright-pacgeo96@aol.com	4508 WEST 13TH AVE. VANCOUVER BC V6R 2V4 CANADA	
Quantec Geoscience Ltd	www.quantecgeoscience.com/	146 Sparks Avenue Toronto, Ontario M2H 2S4 Canada	
RDF Consulting Ltd	www.rdfconsulting.ca/	26 Blue River Place St. John's, Newfoundland A1E 6C3	
Scott Geophysics Ltd	www.scottgeophysics.ca/	Scott Geophysics Ltd 4013 W 14th Avenue Vancouver, B.C. V6R 2X3 CANADA	
Sigma Geophysics Ltd	www.geosigma.com/	1400 Marie-Victorin street, suite 200, St-Bruno (Quebec) Canada J3V 6B9	
SJ Geophysics Ltd	www.sjgeophysics.com/	11966 95A Avenue Delta, BC, Canada V4C 3W2	
Walcott Geoscience Ltd	www.geofisica.com/	111 - 17 Fawcett Rd. Coquitlam BC, Canada, V3K 6V2	
ZAPATA Inc.	www.zapatainc.com/	ZAPATA / Blackhawk Geophysics Division 6302 Fairview Road, Suite 600, Charlotte, NC 28210	
Zonge Inc.	www.zonge.com/	Zonge Engr. & Res. Org. Inc 3322 E. Ft. Lowell Rd. Tucson, AZ 85716	
Contractors: South America	Country	Website	Address
Arce Geofísicos	Peru	www.geofisicos.com.pe	2011 - Av. Petit Thouars 4380 Miraflores, Lima 18, Perú
Argali Geofísica	Chile	Joe Jordan	NA
GRS	Chile	www.consultgrs.com.au/grschile.html	Encomenderos 231, Of. 602, Las Londes Santiago Chile
KTTM Geophysics	Colombia	kttmgeophysics.com/	Bodegas La Regional Carrera 49 # 61 SUR 540, bodega 107, Colombia
Real Eagle Explorations	Peru	Gloria Fernandez	NA
Zonge Ingenieria y Geofísica (Chile) S.A.	Chile	info@zonge.cl	Eduardo Orchard 1351, Antofagasta, Chile
AFC Geofísica	Brazil	www.afcgeofisica.com.br	Av. França 1161 - 90230-220 Porto Alegre - RS
HGEOINTERGEO	Brazil	www.hgeointergeo.com.br	SCLN111 Bl.C Sala 220 - Asa Norte 70754-530 Brasília - DF
RECONSULT GEOFISICA	Brazil	www.reconsult.com.br	Rua Dr. Guilherme Bannitz 126 CJ 92 - 04532-060 Sao Paulo - SP
MICROSURVEY	Brazil	www.microsurvey.net	Est. Rodrigues Caldas 299 R. 301 - 22713-372 - Rio de Janeiro - RJ
TRV GEOFISICA	Chile	Tony Rojas: trojas@adexus.cl	Miraflores 383, piso 21 - 832-0149 Santiago

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Contractors: Africa	Country	Website	Address
Earthmaps Consulting	Namibia	www.earthmapsconsulting.com/	PO Box 2670, Bismarck Street, Flat 14, Haus am Meer Swakopmund Namibia
EXIGESA	RSA	www.exiges.com/	PO Box 262 Ifafi, 0260 South Africa
GAP Geophysics	RSA	www.quiklog.co.za	PO Box 2347, Saxonwold, 2132 South Africa
Geophysical Surveys and Systems	RSA	Neville Brown-nevb@tiscali.co.za	PO Box 2681, Pinetown, 2123 RSA
Geophysics GPR	Zimbabwe	Penias Mpofu-gpr@iwayafrica.co.zw	NA
Geoprospecting Services	Botswana	Lucian Maziwisa-gsb@it.bw	NA
Global Resource Exploration & Mining [Pty] Ltd	RSA	www.resourceexploration.com/	Box 11106 Die Hoewes 0163 Pretoria
Gregory Symons Geophysics	Namibia	Gregory Symons: gsymons@geonamibia.com	NA
MeerCAT Geophysics	RSA	J Trickett: jtrickett@global.co.za	NA
Poseidon Geophysics	Botswana	www.poseidon-geophysics.com/	Plot 3423 Matima Crescent, Extension 12 P Bag X018, The Village Gaborone Botswana
SAGAX Africa	Burkina Faso	sagax@fasonet.bf	SOCOGIB Zone de bois Rue: Lampe Porte No: 412 01 B.P. 1167 Ouagadougou 01 Burkina Faso
SNG Societe Nouvelle de Geophysique	Cote d'Ivoire	Agnaramon Koutoua: kagnaramon-ci@sng.com	NA
Spectral Geophysics	Botswana	www.spectralgeophysics.com/	PO Box 26285 Game City, Gaborone Botswana
terratec Mali SARL	Mali	www.terratec-geoservices.com/mali.html	terratec Mali SARL Rue 28, porte 112 Cité du Niger Bamako Mali
Universal Geoscience Solutions	Zambia	ugeoscience.solutions@gmail.com	Plot 41, Joseph Mwila Rd Rhodes Park Lusaka, Zambia
Vision Geophysics	Botswana	Enkelbert Chinwada-echinwada@gmail.com	NA
Contractors: Europe	Country	Website	Address
Enerson Geophysical Explorations Co., Ltd	Turkey	www.enersonengineering.com	Cetin Emec Bulvari, 8.Cad. 1305.Sok. No: 5/5 A.Ovecler/Ankara Turkey
Terratec	Germany	www.terratec-geoservices.com/	Schillerstr. 3 D-79423 Heitersheim Germany
Contractors: Other	Country	Website	Address
Logantek Mongolia LLC	Mongolia	www.logantek.com	Rokmon Building, Room # 1001, Level 10 Ulaanbaatar, Mongolia
'Dash Mag Eng' LLC	Mongolia	dashmageng.mn	#604, 6th floor, Express Tower, Peace avenue-4, Chingeltei District, P/O Box-2265, UB-15160 Ulaanbaatar 976 Mongolia
Geosan Ltd	Mongolia	www.geosan.mn	Sukhbaatar district, 6th khoroo Baga toiruu, University street-8 Ulaanbaatar-210646a Mongolia
JEB Minerals LLC	Mongolia	jeb-mineral.mn	Baga toiruu-37B, #702 Constitutional Street, Sukhbaatar district, 6-r khoroo, Ulaanbaatar, Mongolia
Khumsup Ltd	Thailand	www.khumsup.com/	NA
IndiGEO Consultants Pvt. Ltd	India	www.indigeo.com	MM Corner, 3rd Floor #58, Banaswadi Main Road Bangalore 560033 India