

New friends and new opportunities

This is my first report, as ASEG President in 2014, since my last presidency some 25 years ago when *Preview* was just a printed folded newssheet. It is wonderful to see how it has grown to be what it is today.

I look back at how things have progressed in those 25 years. In my last term as president the Research Foundation was established. This year will see some \$142 000 allocated to research projects and the cumulative total reach \$1 000 000. In 1989 we also set up the first of the standing committees that direct the various activities of the ASEG including conferences, publications, honours and awards, history etc. All these committees are active today. The work of the volunteers on those committees ensures the ongoing corporate memory and the ASEG runs smoothly. I estimate that almost 10% of the total membership plays some role in the running of the ASEG. This includes state committees, conference committees and standing committees as well as the Federal Executive and publications editors. There is, however, always room for more volunteers. As many of my colleagues head towards retirement we must look to the future. I have my ideas of where the society will go, but I am sure those of the younger members have different and I hope better ideas. Perhaps mine are more rooted in the past, although experience always helps in understanding the possibilities of the future.

If you have your personal goals, issues or desires for the future of the society I encourage you to get involved. There is always room for your involvement on state committees, conference organising

committees and standing committees of the society. Do not stand back and say the society does not work for me. As a member you are as much a part of the society as I am. Make the ASEG be what you what it to be.

I write this piece in a hotel room in Myanmar a country that has been cut off from developments in geophysics for the last 50 years. I see Myanmar as Australia was more than 40 years ago with only an emerging geophysics industry. It is great to see Australian companies here getting involved in the petroleum sector, but there is also much development to be done in terms of education and training. Later this year I hope to bring some Australian colleagues to Myanmar to run a first short training course in modern geophysical methods for mineral exploration, in conjunction with the Myanmar Geosciences Society. If we are to expand our profession then training is one way but training also helps in development of the third world and it is one way we can do our small bit towards raising people out of poverty. What a profession this is that allows me to travel and meet new people in some of the most fascinating places in the world. I can see a future for Myanmar that involves the introduction of technology, such as geophysics, as the country shakes off the past of military rule and moves towards democracy. However, where is Australia going in future?

At present in Australia we are in one of the most depressed periods in mineral exploration that I have seen since I graduated. The boom and bust mentality of the market is one of the most frustrating things in our profession. Just

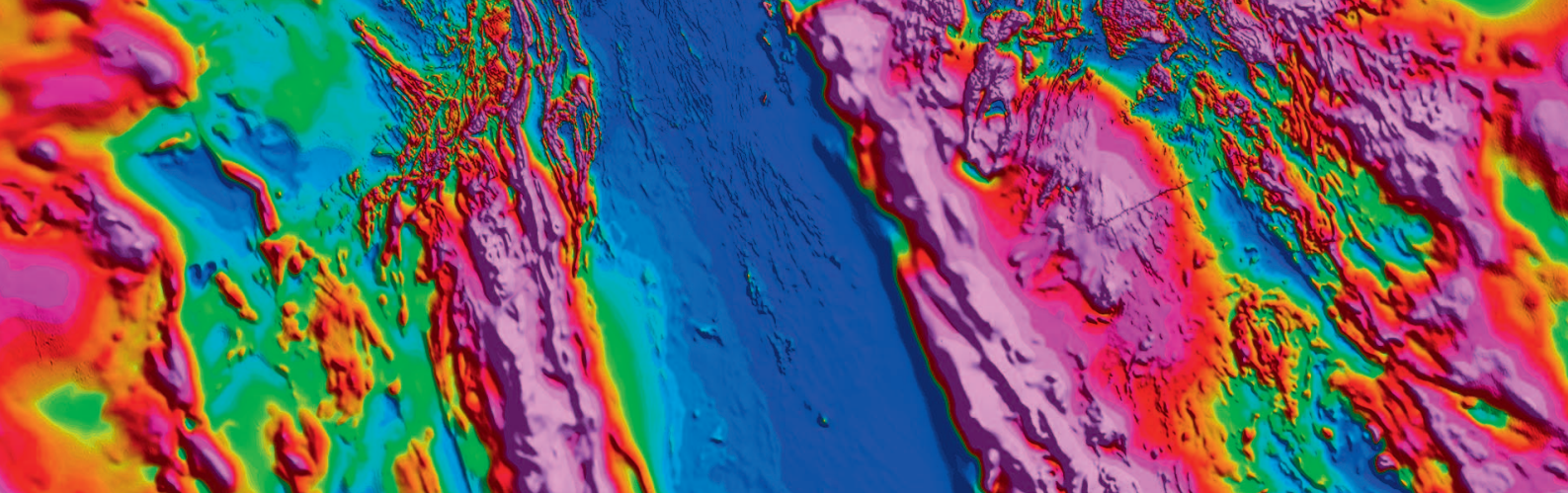
as things are going well the investors take fright and the area that is most affected is greenfields exploration. People are laid-off; many leave the profession and never return. In the past year I have seen many friends retrenched and I remain mystified of the mindset of those who control the minerals exploration market. I would have thought that the business graduates in major companies should be able to think beyond next week. The process from exploration to mining is not instantaneous and those deposits discovered in the next year will come on stream at a time when metals prices will rise again and pass the levels set in the previous boom. This process is even longer for world class deposits. It is more than a decade since we have discovered a world class ore body of the scale of Broken Hill, Mt Isa and Olympic Dam. These deposits will not be found without spending money. Where does that take us as a profession? This lull in exploration will result in greater urgency for discoveries in the future. The next decade will need geophysics to aid such discoveries and the next decade will be a time of great opportunity for geophysicists. Stay with it and times will get better. I speak as one who has seen four or five such periods.

So you might have some time on your hands, then it is time to enhance your profile. I encourage you to present at local meetings; publish your successes or failures as case histories in *Exploration Geophysics*; write something for *Preview*; do a bit of research and/or present at the next ASEG conference. The society needs your experience and I assure you your contributions will be rewarded in the long term. I have always enjoyed my involvement in the ASEG and believe it has resulted in opportunities that otherwise would have not come my way. Harry Siegel, one of the founders of modern geophysics, and my boss at the time, once said to me, 'In geophysics you do business with your friends, get out there and make some new friends'. The ASEG is a way to make friends, colleagues and business opportunities. A recession in the exploration market is a time to do just that and the ASEG can provide the vehicle. Some of my best friends are in the exploration industry.

Greg Street
ASEG President
president@aseg.org.au



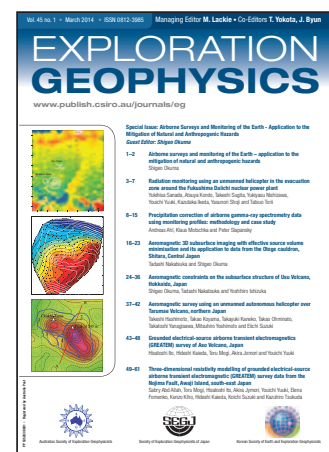
Fieldwork in Shan State, Myanmar.



Exploration Geophysics

The Journal of the Australian Society of Exploration Geophysicists

Publishing excellent research, technical papers, case histories, advances in data interpretation and theoretical developments in applied geophysics.



Preview

The Magazine of the Australian Society of Exploration Geophysicists

News and reviews on the exploration industry, advances in geophysical techniques and communication among ASEG members.



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New members

The ASEG extends a warm welcome to 58 new members (52 student, 5 active and 1 associative) approved by the Federal Executive (see table).

Name	Organisation	Country/State	Membership grade
Approved 27 March 2014			
Joelene Barron	–	Qld	Student
Katrina Bourke	–	Qld	Student
Sheree Louise Burdinat	–	Qld	Student
Maria Cornelia	–	WA	Student
Declar Cox	–	Qld	Student
Daniel Patrick Franks	–	Qld	Student
Katherine Gioseffi	–	Qld	Student
Nicholas Josephs	–	Qld	Student
Mark Kohler	–	Qld	Student
Amy Leask	–	Qld	Student
Jessica Martin	–	Qld	Student
Misha Mashkin	–	Qld	Student
Genna McDonagh	–	Qld	Student
Mathesu Mon	–	Qld	Student
Jackson Newton	–	Qld	Student
Ahmed Wasan Wabib Radha	–	Qld	Student
Shahid Ramzan	–	NSW	Student
Alexander George Robson	–	SA	Student
Alec Anthony Saxuik	–	Qld	Student
Cooper Michael Simpson	–	Qld	Student
Bryce Tian Wei Teo	–	WA	Student
Jackson Trezise	–	QLD	Student
Remke Leander Van Dam	VU University Amsterdam	Kingdom of Netherlands	Active
Samantha Ware	–	Qld	Student
Ambrose Watson	–	Qld	Student
Damian Weibler	–	Qld	Student
Sinem Yavuz	–	WA	Student
Approved 24 April 2014			
Adrian Goldberg	ENI	WA	Active
Patrick Mee	Bruce Beer & Associates	Qld	Associate
Joshua Meetens	–	WA	Student
Aida Muratbegovic	UTS Geophysics	WA	Active
Benjamin Patterson	–	NSW	Student
Lisa Worrall	Protean	ACT	Active
Approved 29 May 2014			
Brandon Alessio	–	SA	Student
Brianna Marie Clark	–	SA	Student
Natalie Debenham	–	SA	Student
Nicholas Walter Eckert	–	SA	Student
Oleg Ermakov	GHD	Vic.	Active
Gorgina Falster	–	SA	Student
Michael Connor Genockey	–	SA	Student
Joel Herbert	–	NSW	Student
Sarah Jean	–	WA	Student

Continued

Name	Organisation	Country/State	Membership grade
Peter Karlin	–	NSW	Student
Samuel Angus McKindlay	–	SA	Student
Alison Kirby	–	SA	Student
Maria Cornelia Kitzig	–	WA	Student
Richard John Lewis	–	SA	Student
Stacey Patricia Lock	–	SA	Student
Martin Manser	–	SA	Student
Georgia Matthews	–	SA	Student
Matthew McIntyer	–	SA	Student
Hamish Prodan	–	SA	Student
Paul Soeffky	–	SA	Student
Michael David Stepan	–	SA	Student
Alan Stoate	–	SA	Student
Maria Then	–	SA	Student
Alexander Robert Tunnadine	–	NSW	Student
Matteo Anthony Villani	–	NSW	Student



SEG
www.segweb.org

September 27-30, 2014
Keystone, Colorado, USA

SEG 2014 CONFERENCE

Building Exploration Capability for the 21st Century

www.seg2014.org



The conference will include plenary as well as simultaneous sessions.

Program

Sub-themes:

- Fundamental Advances in Economic Geology
- Deposit Footprints
- Innovations in Exploration Technology
- Mineral System Science
- Exploration Management & Targeting
- Case Studies of 21st Century Exploration Success

Workshops

- Advanced GIS Techniques – Maximizing Your Data
- Application of Multi-Element Geochemical Data: Exploring Datasets for Better Targeting & Domaining
- Future of Mineral Exploration Drilling & Sampling
- Exploration in 2025: The Tools and Techniques to Explore Under Cover
- Getting More from Drill Core – Automated, Spectral-Based Mineral & Texture Mapping

Field Trips

- Porphyry and Skarn Systems of the Southwest U.S.
- Non-Ferrous Mineralization Associated with the Wawa-Abitibi Terrane & Duluth Complex Cu-Ni-PGM Deposits, Northeastern Minnesota
- Colorado Porphyry-Molybdenum Deposits & Leadville District
- Cripple Creek & Victor Gold Mine
- The Viburnum Trend: A World-Class Pb-Zn-Cu MVT District in SE Missouri
- Uncovering the Bingham & Stockton Cu-Mo-Au Porphyries
- Gold & Silver Mines of the Sierra Madre Occidental, Mexico

PATRON

 **AngloAmerican**  **bhpbilliton**

PREMIER

 **FREEPORT-McMoRAN**  **KGHM**  **RioTinto**

GOLD

 **BARRICK**  **NEWMONT**  **RANDGOLD**

SILVER

 **ANGLOGOLD ASHANTI**  **GRUPO ANTOFAGASTA MINERALS**  **FIRST QUANTUM MINERALS LTD.**

 **GOLD RESOURCE CORPORATION**  **hcla MINING COMPANY**  **MMG**

BRONZE

 **BOLIDEN**  **Geotecnia de Minas**  **COEUR MINING**  **Dawn Zhou**  **GEOLOGIC RESOURCE PARTNERS LLC**

 **GEOTEMPS**  **The Mather Fund**  **MILPO**  **newgold**

FOR REGISTRATION, SPONSORSHIP OPPORTUNITIES, AND EXHIBITS, VISIT SEG2014.ORG

President's Report

Prepared for the Annual General Meeting held on 10 April 2014

Introduction

When I took over the presidency in April 2013, I expected a smooth ride through the year – many outstanding projects were either completed or in their final stage:

- by then the preparations for the Melbourne ASEG–PESA 23rd IGC&E were well underway;
- the new joint ASEG–SEG book, *Geological Interpretation of Airborne Magnetic Data*, which had been in preparation for nearly three years, drew near to completion;
- negotiations with SEG to list in *Exploration Geophysics* were almost complete;
- the new ASEG website opened with continued development; and
- preparations for the ASEG's own training course, OzSTEP, were well on the way.

A change occurred after the Melbourne conference. We noticed some discrepancies within the membership database, including failings to update members' information in a timely manner. A major investigation ensued, followed by a 'clean-up' of the membership database and its link with the ASEG website. In turn, this prompted us to review the secretariat's ability to keep up with the change of scope of service to the ASEG and the modern IT environment. This resulted in our tendering and appointing a new secretariat.

Finance

The current financial position of ASEG is sound, with our reserve improving considerably this year. As the Treasurer's Report describes, the current balance of ASEG account is close to one and a half million dollars – a large increase from the balance at the end of 2012 being just over one million dollars. The success of the Melbourne ASEG–PESA 23rd IGC&E, held in August 2013, is a major contributor to this growth, returning over \$400 000.

Conference

The Melbourne conference proved successful:

- the total number of attendees came to 846, of which about half were ASEG members;
- the 300 submissions received included 197 oral presentations and 56 posters;
- 18 workshops were held; and
- 82 exhibitors displayed their products in 110 booths.

All of which resulted in an outstanding financial return.

The next conference, Perth ASEG–PESA 24th IGC&E, 15–18 February 2015 (www.conference.aseg.org.au), is in preparation.

Publication

Our journal *Exploration Geophysics* entered its second year as joint journal with our sister societies in Japan (SEGJ) and South Korea (KSEG). The number of articles grew from 27 in 2012 to 34 in 2013. Its impact factor improved from 0.619 (2010), 0.634 (2011) to 0.667 (2012). (Note: The 2013 impact factor is due for release in mid-2014.)

The negotiation with SEG to list *Exploration Geophysics* in their Digital Library is complete, its implementation occurred in December 2013. This enhanced the exposure of our journal to the world geophysical community, and we expect the download of articles to increase. Table 1 shows the number of downloads during the introductory period.

A similar arrangement with Deutsche Forschungsgemeinschaft (German equivalent of ARC) through our publishers CSIRO Publishing is on the way. CSIRO Publishing plans to list all their journals with them.

Throughout the year, *Preview* publications arrived on time; the August issue combined with the conference handbook. Room still exists for expansion

Table 1. *Exploration Geophysics* articles download via the SEG Digital Library

	Abstract downloads	Full paper downloads
Jan 2014	749	1340
Feb 2014	1193	1841
To 24 March 2014	1360	1016

and enrichment, with regular contributions sought from our members.

We also oversaw a milestone in the ASEG: a joint ASEG–SEG book, *Geological Interpretation of Airborne Magnetic Data*, published in August 2013.

Membership

The membership at the end of February was 1209 compared with 1186 in 2013.

Membership fees came under review and the policy on setting fees consolidated. This review took place because of the increased complexity of membership structure due to introduction of digital publication and option to receive digital and/or printed copies. The subscription for 2014 remains the same as 2013. We abolished the annual fee for student members, who do not receive printed copies of publications.

The membership database underwent major checking, with each record checked manually, revealing some discrepancies in the old Access database at the former secretariat – perhaps caused by the system of updating information and some handling procedures. Multiple databases existing in the secretariat, website and publisher caused problems. In the near future, we will develop a single database system to supply information for membership updates, renewal, mailing, members' login and access to publications.

Education

Continuous education programmes in association with SEG and EAGE hosted seven lecturers totalling 28 sessions in the past year (Table 2). ASEG subsidises their tour in Australia above their budgeted itinerary so that the members in many state branches can take advantage of these programmes. Unfortunately, the SEG decided not to send Spring Distinguished Lecturer, Gerald Schuster, to Australia this year.

ASEG's own training course OzSTEP started in October: Michael Asten and Dennis Cooke hosted one-day courses for branches.

ASEG continued support to the Teacher Earth Science Education Programme

Table 2. EAGE and SEG distinguished lecture tours

		QLD	NSW	ACT	VIC	TAS	SA	WA
SEG Fall DL Manika Prasad	Shales and imposters: understanding shales		●		●			●
Asia Pacific HL Dave Isles	Aeromagnetism – a driver for discovery & development of earth resources	●	●	●	●		●	●
EAGE EET6 Olav Inge Barkved	Seismic surveillance for reservoir delivery				●			
SEG DISC David H. Johnston	Making a difference with 4D: practical applications of time lapse seismic data	●			●			●
SEG Fall DL Carl Regone	Acquisition modeling: expect the unexpected	●	●	●	●	●	●	●
SEG Near Surface HL Valentina Socco	Surface wave analysis for near-surface characterisation: introduction, theme and variations	●					●	
Pacific South HL Sandeep Chandola	Marine seismic acquisition	●	●	●	●		●	●

(TESEP), the Australasian Universities Geoscience Educators Network (Augen) and Australian Curriculum, Assessment and Reporting Authority (ACARA).

Website

Delay to the progress of populating the ASEG website is due to priority been given to the membership database and payment system updates. The Webmaster had to address a number of issues to interface the ISP and the former secretariat with the membership database. This caused frustration to some members as well as Federal and State committees. The problems are being resolved, with access authority soon to be issued to branches and committees to enable updating of their respective pages once the website manual is ready.

Technical standards

Preparations for the new standard format for the exchange of electric survey data named 'ASEG-ESF' are complete and documented on the ASEG website, with notifications issued to the Government Geoscience Information Committee (GGIC) and the Chief Government Geologist Committee (CGGC) for use in mandatory data submissions. This new standard format is considered flexible enough to allow for unforeseen future changes in instrument output and, being

in ASCII format, it will ensure platform independence and durability.

Honours and Awards

In 2013, the ASEG awarded two Honorary Memberships: one to Phil Harman and the other to Mike Asten. Other awards presented include the following: Lindsay Ingall Memorial Award (Pat Cunneen); Graham Sands Award (Malcolm Cattach, Keith Matthews, Edward Campbell and Symon Bouwman); Service Medal (Peter Priest), Service Certificates (Andrea Rutley; Patrick Hillsdon); Early Achievement Award (Cara Danis Jacques); and Shanti Rajagopalan Memorial Award (Cara Danis Jacques). The Conference Organising Committee selected the winners of the Laric Hawkins and presented to P Kovesi, E-J Holden & J Wong, for 'Interactive multi-image blending for data visualisation and interpretation'.

The Honours and Awards Committee is following up the suggestion of nominating members for Civilian Awards.

History

The History Committee started its posting of 'The History of ASEG' on our website with the foundation of the ASEG, 'A brief history of the formation of the

ASEG', posted on June 2013 and compiled by Mike Smith and Roger Henderson. The plan is to include the history of education of geophysics; biographies of prominent members whose names we commemorate with awards; collections of conference themes and logos; and links to historical articles published in *Preview*.

The collection of museum material has started, and a collection policy was organised in the later part of the year.

Research Foundation

During 2013, the ASEG Research Foundation offered grants for six projects totalling \$106 900; the projects will take up to three years. Over its life, the Research Foundation committed awards totalling \$947 550; a figure expected to exceed one million dollars upon approval of the next round of awards later this month. Thanks to the corporate members and individual members who donated funds to the Research Foundation.

International affairs

The ASEG signed two new association agreements in 2013: Sociedade Brasileira de Geofisica (SBGf) and Geophysical Society of Mongolia (GSM).

The SEG, EAGE, SEGJ, KSEG and SBGf each had booths at the Melbourne Conference. In turn, the ASEG enjoyed reciprocal representation in the following foreign conferences: EAGE (London, June; by Koya Suto); Near-Surface Geophysics Asia-Pacific (Beijing, July; by Koya Suto); SBGf (Rio de Janeiro, September; by Des Fitzgerald); SEG (Houston, September; by Koya Suto); SAGA (Kruger National Park, October; by Greg Street & Katherine McKenna); SEGJ (Yokohama, November; by Greg Street & Koya Suto); and SAGEEP (Boston, March; by Koya Suto).

The ASEG participated in the first Near-Surface Geophysics Asia-Pacific conference led by the SEG. About 300 delegates attended this conference, returning a modest (~\$3800) surplus to ASEG. This conference will be hosted in Hawaii next in 2015, and then in Australia in 2017.

Secretariat change

Federal Executives decided to tender for a new secretariat in October. The old secretariat at CASM had been working

with us for ten years. During that time, the ASEG grew considerably with changes in the business IT environment. Accordingly, our expectations for secretariat work also changed. We found CASM did not meet our changing expectations, e.g. the issues with the membership database. So, the Federal Executive (FedEx) thought it appropriate to seek a new contract with a new set of scopes; after an intensive selection process it chose 'The Association Specialists' (TAS) to work with us. In the initial two months, TAS showed a committed service culture with knowledge of business and keen initiatives.

Federal Executive members

Michael Asten, who served in the FedEx since 2008, including as President in 2009, retired in August 2013. Reece Foster, member of the FedEx since 2009 and Treasurer in 2012, is retiring at this (April 2014) AGM. Also retiring is Philip Heath, who looked after state branch liaisons since 2012.

Tania Dhu joined the FedEx in September 2013. Other FedEx members for 2013 include the following: Greg Street, President-Elect; Phil Schmidt and Mark Tingay, Vice-Presidents; Barry Drummond, Hon Secretary; Kim Frankcombe, Immediate Past President; Carina Kemp; Katherine McKenna; and Wendy Watkins.

I thank them for their contributions throughout the year. I would like to note three of the members who undertook particularly hard tasks this year: Katherine McKenna, for resolving the membership database problem; Carina Kemp, for interfacing the database and website; and Kim Frankcombe, for leading the secretariat tendering process.

New challenges

We have drawn a five-year strategic plan. We identified that education is a key element in the ASEG's role in the geophysical community. The first stage, implementation of OzSTEP, has already taken place. Soon to be formed are Specialist Groups canvassing several disciplines: these groups will promote communication amongst interested members via our website, newsletters and meetings. Additionally, these Specialist Groups will assist future conferences in organising technical sessions.

The UNCOVER initiative held a summit meeting in Adelaide. Many geophysics contents are included and we expect a higher level of activities in our field – the ASEG may be of help in this initiative.

Further enhancement of membership service through the website is in the plan. State branches, Secretariat and committees will be able to post their information on respective web pages. Carina Kemp as Webmaster is working on manuals for the participants. We need more people to share her workload.

Our journal *Exploration Geophysics* and magazine *Preview* will continue to deliver high-quality articles to members. The ASEG Research Foundation will continue to support studies in geophysics.

The forthcoming conferences in Perth in February 2015, then in Adelaide 2016 will be our largest regular events to provide members with opportunities to refresh their technical skills and to meet colleagues. In addition, the ASEG is hosting the Near-Surface Geophysics Asia-Pacific conference in 2017. This conference is smaller than our regular conferences, offering opportunities for venues that cannot accommodate ASEG conferences. As this is an international conference, we are considering an

attractive venue for international delegates as well as our members.

To close off

I thank all the individual and corporate members for their support of ASEG, particularly those who participated in committees at all levels: editors, associate editors, the publisher and secretariats. I also thank our associate society friends who promoted our conference, who provided lecturers, who are partners in *Exploration Geophysics*, and who participated in the Near-Surface Geophysics Asia-Pacific conference.

I note *Preview* did not publish any obituary. This no news is good news. Wishing all another safe and healthy year, I pass the gavel to Greg Street, my successor.

Thank you for the opportunity to be your President for the past year.



Koya Suto hands over the ASEG Presidency to Greg Street.

Koya Suto
President, ASEG
2013–2014



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Treasurer's Report

Prepared for the Annual General Meeting held on 10 April 2014

Presented here are the Audited financial statements of the year ending 31 December 2013 for the Australian Society of Exploration Geophysicists (ASEG). The financial statements refer to the consolidated funds held by the society as a whole, including the State Branches.

The Society's funds go towards promoting the science and profession of geophysics throughout Australia, achieved by:

- funding publications (*Exploration Geophysics*, *Preview* and the *Membership Directory*);
- supporting State Branch functions;
- funding the national administration of the Society;
- continuing education programs;
- provision of loans and grants for conventions;
- provision of subsidies for student members; and

- supporting the ASEG Research Foundation.

As of 31 December 2013, the Income Statement for the year shows a net surplus of \$144 579, and a Total Equity of \$1 426 878. The Society's revenue source continues to be derived from:

- publications advertising: \$187 000;
- membership subscriptions: \$149 000;
- events and sponsorship: \$127 000;
- conferences: \$572 000;
- interest from accumulated investments: \$38 000; and
- donations to the Research Foundation: \$20 000.

The actual income for the year is significantly higher than the budgeted amount. Conferences account mostly for the significant increase in income – specifically, the 2013 ASEG Conference.

The major expenses for the Society include:

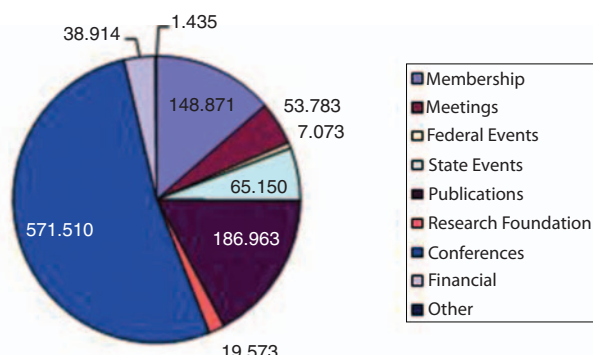
- publications: \$270 000;
- events: \$264 000;
- research foundation support: \$107 000;
- secretariat fees: \$95 000;
- conferences: \$184 000; and
- financial: \$19 000.

Expenditure is slightly higher than budgeted, mainly due to more conference related expenses. The Society is in a very sound financial position going into 2014. The equity held will cover the uncertainty of income from future conferences.

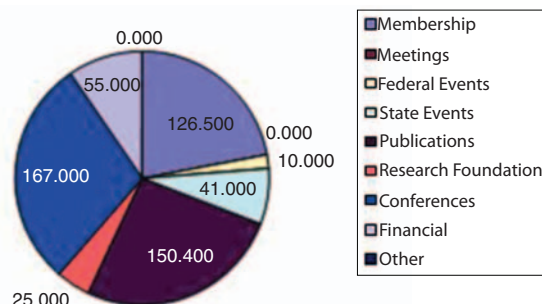
Charts of Income and Expense Items

*Reece Foster – 1 April 2014
Honorary Treasurer (2013–2014)
treasurer@aseg.org.au*

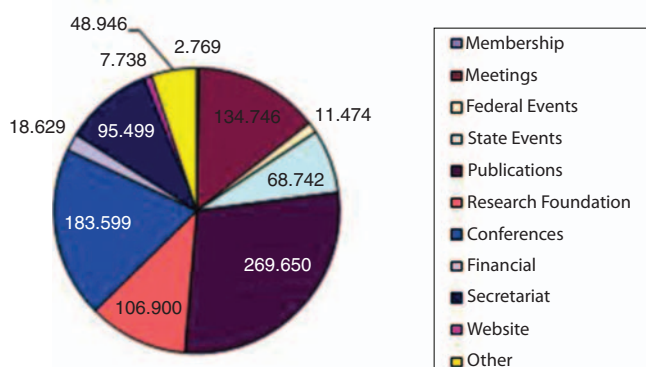
**2013 INCOME
ACTUAL (\$'000s)**



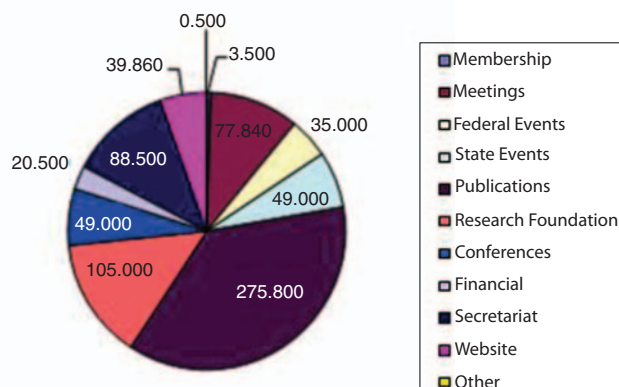
**2013 INCOME
BUDGET (\$'000s)**



**2013 EXPENSES
ACTUAL (\$'000s)**



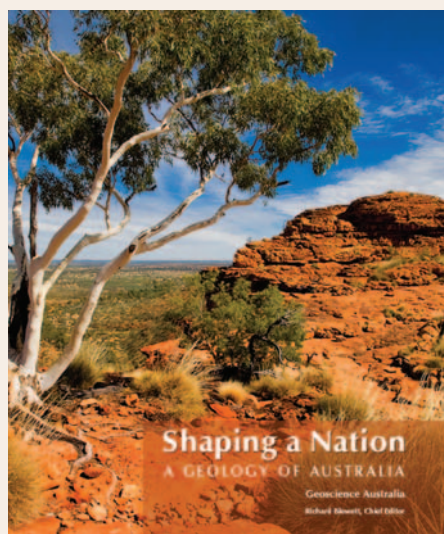
**2013 EXPENSES
BUDGET (\$'000s)**



Australian Capital Territory

In April, the ACT branch of the ASEG hosted the Federal Executive AGM. It offered us a great opportunity to spend more time with the Federal Executive than usual. The branch extended thanks to Koya Suto for his leadership as President and to Kim Frankcombe for his inspired talk 'Deep Exploration using Electrical Methods' by presenting them both a copy of *Shaping a Nation: A Geology of Australia* edited by Dr Richard Blewett. This visually spectacular book is available free of charge in PDF format, downloadable from ANU Press (<http://press.anu.edu.au/titles/shaping-a-nation>) and, yes, it does highlight geophysics.

The ACT branch has called for applications for two student awards. The first student award is for \$2000 and will be awarded in June 2014 for an outstanding undergraduate or postgraduate student (second year or above) studying geophysics or a geophysics-related discipline in the ACT. The second award is a student conference travel award to support attendance at an ASEG conference. This award includes student registration fee and pre-approved travel costs to a maximum value of \$1000. The award is open to ACT students studying geophysics or a geophysics-related discipline, or those using geophysical data or concepts in a major project. For further details, please contact Marina Costelloe actpresident@aseg.org.au or Millie Crowe actsecretary@aseg.org.au. Applications for 2014 closed prior to the publication of this edition. Awards will be announced in the next edition of *Preview*.



The Act Branch awarded hard copies of *Shaping a Nation* to Koya Suto and Kim Frankcombe.

On 14 May 2014, the ACT Branch hosted the EAGE course 'Seismic Fracture Characterisation: Concepts and Practical Applications' given by Enru Liu of ExxonMobil. As part of the EAGE's Education Tour 8, this course received support, to a degree, by the ASEG and, for the Canberra visit, by PESA. Around 20 people attended the course, including a substantial cohort of students availing themselves of the free places generously offered by the EAGE.

Marina Costelloe
ACT Branch President

New South Wales

In March, we hosted the 2014 Pacific South Honorary Lecturer, Sandeep Chandola.

Sandeep spoke about Marine Seismic Acquisition, giving an overview of the field as well as showing many examples of what is currently done. Sandeep then discussed future possibilities and what he thought future trends would be. Much discussion followed his presentation and ample red wine was consumed discussing the finer points of broadband acquisition.

In April, Nathaniel Butterworth from the University of Sydney spoke about big data-mining techniques for porphyry deposits. Nathaniel discussed how data-mining large multidimensional datasets and applying machine learning techniques is moving us toward constructing next-generation reference frames. Nathaniel took us through applying such techniques in looking at porphyry deposits in South America.

Also in April we awarded a Scholarship to our 2014 ASEG NSW Student Scholarships recipient. The recipient is Ben Patterson from Macquarie University. The Scholarship is to assist the student with their geophysics research topic.

An invitation to attend NSW Branch meetings is extended to interstate and international visitors who happen to be in town at that time. Meetings are held on the third Wednesday of each month from 5:30 pm at the Rugby Club in the Sydney CBD. Meeting notices, addresses and relevant contact details can be found at the NSW Branch website.

Mark Lackie

Victoria

On Friday 14 March 2014 the ASEG Victoria Branch hosted SEG 2014 Pacific

South Honorary Lecturer Sandeep K. Chandoola from Petronas presenting 'Marine Seismic Acquisition: Expanding the Possibilities!' Sandeep hosted the noontime lunch meeting at the Victoria Hotel to a small, but enthusiastic, group of geophysicists, not only from the ASEG branch but also from PESA.

Wednesday 16 April 2014 saw the return of the Annual General Meeting (AGM) of the ASEG Victorian Branch: John Theodoridis stepped down as Victorian Branch Secretary prior to an interstate move, and Theo Aravanis handed over the role of Victorian Branch Treasurer in preparation for a more federal role in the ASEG. Both left with thanks and appreciation for their work with the Victorian Branch over the past years. We held the AGM at the historic Kelvin Club in Melbourne's CBD. Members re-elected Asbjorn Norlund Christensen as Victorian Branch President, and elected Seda Rouxel as Victoria Branch Secretary and Luisa D'Andrea as Victorian Branch Treasurer.

Following the AGM Richard Schodde from MinEx Consulting presented 'The Rise and Rise of Geophysics: an Overview of Minerals Exploration Trends over the Past Century'. Richard presented the results of a detailed study he has carried out which assessed the exploration techniques used on to discover over 2000 significant gold and base metal deposits around the world from 1900 to present. Prior to 1950, most discoveries were made by prospecting, but in recent decades, geochemistry and geophysics have progressively become more important – especially geophysics for prospect-scale exploration of base metal deposits under cover. From his work, it is clear that geophysics will play an increasingly critical role in finding the next generation of mines.

On 30 April 2014, we hosted the one-day SEG Distinguished Instructor Short Course (DISC) 'Microseismic Imaging of Hydraulic Fracturing: Improved Engineering of Unconventional Shale Reservoirs', by Shawn Maxwell of Schlumberger. We are indeed fortunate that SEG will sponsor such events.

On 21 May 2014, James Macnae from RMIT presented 'Airborne IP is coming!' at the Kelvin Club. James convincingly argued that with recent improvements in signal/noise ratios of helicopter TEM systems, the late-time effects of induced polarisation from near-surface sources are commonly observed in survey data.

However, in order to detect polarisable targets such as a copper porphyry or tabular sulphide body under say 100 or 150 m of moderately conductive cover, it is necessary to make several changes to airborne EM systems. This includes changing system geometry to separate transmitter from receiver by about 200 m, lowering the base frequency to 10 Hz (or lower) and obtaining adequate signal/noise at this low frequency during both on- and off- times of the transmitter. Research and limited airborne testing has shown that the key requirement of signal/noise can be achieved at 12.5 Hz in central-loop AEM geometries. However, the requirement of a 200 m separated transmitter–receiver is one that is difficult to overcome.

It is going to be a busy winter and spring season at the ASEG Victoria Branch:

- We are currently seeking a speaker for a technical evening meeting in July, so watch out for email alerts.
- On Wednesday 6 August 2014, it will be time for the *Annual Joint ASEG–PESA–SPE Mid-Winter Social*.
- On Thursday 7 August 2014, we will host the SEG 2014 Distinguished Lecture: ‘3D seismic image processing for interpretation of faults and horizons’, presented by Dave Hale from Colorado School of Mines. This will be a noontime lunch meeting.
- On Friday 19 September 2014, we will host the ASEG 2014 OzStep one-day course ‘The Gamma-ray Spectrometric Method for Mineral Exploration and Environmental Mapping’, to be presented by Brian Minty.
- On Wednesday 8 October 2014, we will host an evening technical meeting with the SEG 2014 Near Surface Honorary Lecture: ‘Integrated Geophysical Methods Applied to Geotechnical and Geohazard Engineering: From Qualitative to Quantitative Analysis and Interpretation’, by Koichi Hayashi from Geometrics.

We look forward to seeing many ASEG Victoria Branch members at the meetings in the coming months.

Asbjørn Nørlund Christensen
VIC Branch President

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SEG 2014 Pacific South Honorary Lecturer Sandeep K. Chandoola from Petronas presenting to the ASEG Victoria Branch.



UPCOMING EVENT

REGISTRATION OPEN FROM JULY 7

A Practical One-Day Workshop on: Geophysical Inversion for Mineral Explorers

presented by the WA Branch of the Australian Society of Exploration Geophysicists

Targeting geologists and geophysicists, this event will be a one-day seminar series focused on the application of geophysical inversion in modern mineral exploration. Presentations will cover a wide range of geophysical techniques, commodities and geological settings.

WHEN & WHERE

September 2nd, 2014
City West Function Centre
45 Plaistowe Mews, West Perth, WA

REGISTRATION RATES*

ASEG and AIG members	\$200
Non-members	\$300
Students	\$50

* Includes GST, morning & afternoon teas, lunch and sundowner

PROVISIONAL PROGRAM

- Practical theory
- Case studies I
- Case studies II
- Recent and future developments

PROVISIONAL SPEAKERS

Helen Gibson, Kim Frankcombe, James Reid,
Chris Wijns, Michael Webb, Brett Harris, Yusef
Ley Cooper, Tim Chalke and many more!

Sponsored by



For further information contact Regis Neroni (rneroni@fmgl.com.au), John Joseph (john.joseph@groundprobe.com) or Antonio Huizi (antonio@sgc.com.au)

ASEG National Calendar: Technical Meetings, Courses and Events

Date	State branch	Event	Presenter	Time	Venue
2014					
6 Aug	Melbourne, VIC	Annual Joint ASEG–PESA–SPE Mid-Winter Social		TBA	TBA
13 Aug	Perth, WA	Humanitarian geophysics	Jeff Shragge, UWA, Perth	1730–1900	City West Function Centre
10 Sept	Perth, WA	New logging and sensing technologies for mineral exploration	Brett Harris, Curtin University, Perth	1730–1900	City West Function Centre
13 Nov	Perth, WA	Honours and Masters Students Research Presentations	various	1730–1930	City West Function Centre
10 Dec		AGM and Christmas Party		1730–2030	TBA
OzSTEP One day course '4D Seismic Reservoir monitoring' Presented by David Lumley					
EAGE Distinguished Lecturer Programme (DLP): 1h Webinar Q&A on 16 July at 1300 EST 'Controlled Source EM and Magnetotelluric Data for Sub Basalt Imaging' Presented by G. M. Hoversten To access the abstract and biography, visit the EAGE homepage (www.eage.org) and follow the tabs: Education > Learning Geoscience > Classroom Training > DLP > Overview DLP Lectures. (Please contact Wendy Watkins at continuingeducation@aseg.org.au for additional information.)					
2014 SEG/AAPG Distinguished Lecturer '3D seismic image processing for interpretation of faults and horizons' Presented by David Hale, Colorado School of Mines, Golden Colorado, USA Supported by CGG and Paradigm. (www.seg.org)					
Date ^{TBC}	State branch	–	–	Time	Venue
4 Aug	Brisbane, Qld			TBA	TBA
5 Aug	Canberra, ACT			TBA	TBA
7 Aug	Melbourne, Vic.			1200	TBA
8 Aug	Hobart, Tas.			TBA	TBA
11 Aug	Adelaide, SA			TBA	TBA
12 Aug	Perth, WA			1730 start	City West Function Centre
OzSTEP One day course 'The Gamma-ray Spectrometric Method for Mineral Exploration and Environmental Mapping' Presented by Brian Minty					
Date	State branch	–	–	Time	Venue
19 Sep	Melbourne, Vic.			TBA	TBA
2014 SEG Near Surface Honorary Lecturer 'Integrated geophysical methods applied to geotechnical and geohazard engineering: from qualitative to quantitative analysis and interpretation' Presented by Koichi Hayashi, Geometrics San Jose, California (www.seg.org)					
Date	State branch	–	–	Time	Venue
8 Oct	Melbourne, Vic.			TBA	TBA
10 Oct	Perth, WA			1730 start	City West Function Centre

TBA, to be advised (please contact your state branch secretary for more information); TBC, to be confirmed.



Initial Notification for Nominations for the 2015 ASEG Honours and Awards

Presentation at the ASEG-PESA 24th International Geophysical Conference and Exhibition,
15–18 February 2015, Perth, WA



Categories include:

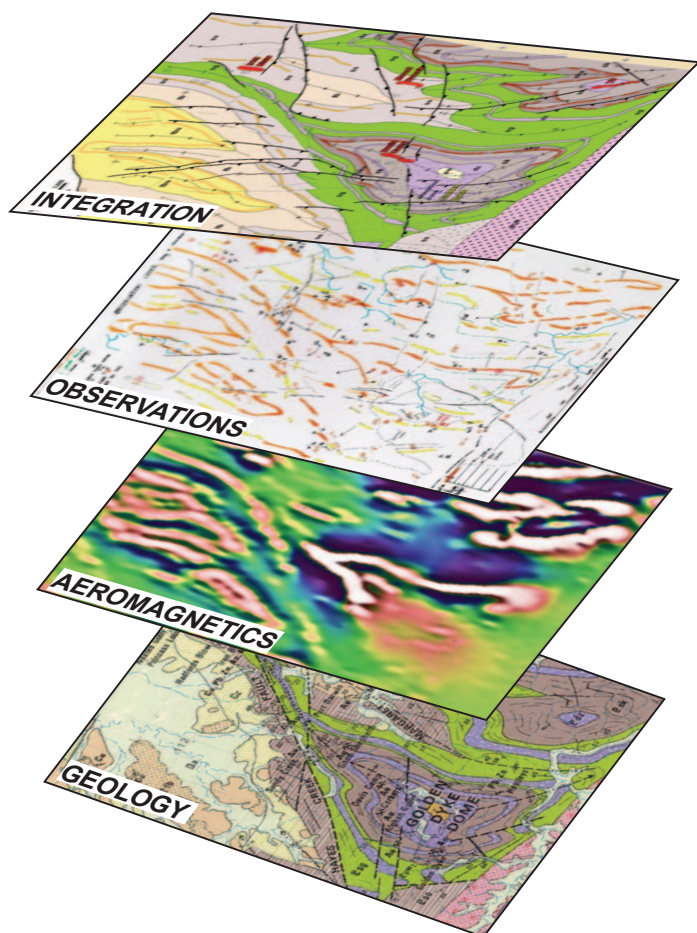
- Outstanding contributions to the geophysical profession
- Outstanding contributions and service to the ASEG
- Recognition of innovative technological developments
- Promotion of geophysics to the wider community
- Significant achievements by younger ASEG members

Nomination guidelines:

- ASEG website www.aseg.org.au/awards
- Further details in the next issue of *Preview*

For further information, or to request a nomination pro forma or submit an initial nomination advice, please contact:

Andrew Mutton
ASEG Honours and Awards
Committee Chair
awards@aseg.org.au



GEOLOGICAL INTERPRETATION of AEROMAGNETIC DATA

a **NEW** e-BOOK by Dave Isles and Leigh Rankin

This book is a practical manual for aeromagnetic interpretation written primarily for geologists.

As well as covering the basic physics of magnetic anomalies and chemistry of magnetisation in rocks, it features three expansively worked examples illustrating the integration of aeromagnetics and geology in terrains ranging from Archaean 'granite-greenstone' to Phanerozoic sedimentary basins.

It generously illustrates modern imagery and the basic steps in the integration and interpretation process.

Based on the short course "Geological Interpretation and Structural Analysis of Aeromagnetic Data" conducted by the authors since 1995, the book aims to provide readers with the basic qualitative observation and interpretation skills necessary for integration of aeromagnetics with geology.

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Published by ASEG



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ASEG Specialists Travelling Education Programme (OzSTEP)

Presenters for 2014 announced!

In 2013, the ASEG proudly presented two inaugural OzSTEP courses. The one-day courses, divided into two streams: Minerals and Petroleum, aim to provide further education for members given by presenters with a particular specialisation in geophysics. The ASEG would like to thank Michael Asten and Dennis Cooke for presenting the inaugural 2013 courses. Following the success of the 2013 programme, the ASEG is pleased to announce the continuation of these courses into 2014.

Minerals stream

'The Gamma-Ray Spectrometric Method for Mineral Exploration and Environmental Mapping'
Presented by Brian Minty

Intended audience

Geophysicists and geologists seeking to broaden their knowledge of the gamma-ray spectrometric method and its geoscience applications.

Course outline

Session 1:

- Course overview and scope
- Fundamentals of gamma-ray spectrometry
- Introduction to ground and airborne surveying

Session 2:

- Calibration and data processing
- Spectral methods for reducing noise

- Data reduction methods
- Radioelement baselines and back-calibration

Session 3:

- Contract specifications and survey monitoring
- Quality control for airborne gamma-ray surveys
- Radon effects in gamma-ray surveys

Session 4:

- Gamma-ray fundamentals for effective interpretation
- Disequilibrium and accuracy
- Measurement precision
- Presentation and interpretation

Biography

Brian Minty graduated from Rhodes University (BSc) in 1976 with majors in mathematics and physics. He then received a BSc (Hons) in 1977 specialising in geophysics from the University of the Witwatersrand, and a MSc (Cum Laude, 1982) in exploration geophysics from the University of Pretoria, and a PhD (1997) from the Australian National University. Early in his career, Brian worked for the Geological Survey of South Africa (1977–1981), and Hunting Geology and Geophysics (1982–1986). In South Africa he worked on airborne surveys targeting uranium, and it was during this period that he developed a life-long interest in airborne geophysics and, in particular, the gamma-ray spectrometric method. In 1986, he joined Geoscience Australia, and soon found himself in a research role. He

has published techniques for mapping caesium fallout, the micro levelling of airborne magnetic data, the estimation of atmospheric radon background, and the multichannel processing of airborne gamma-ray spectrometric data. He also developed a methodology for the automatic merging of gridded airborne geophysical survey data. After 25 years with Geoscience Australia, and its predecessors, Brian started his own consultancy (Minty Geophysics) in 2011. Over the years, he has undertaken a number of international training consultancies – mainly in the field of airborne gamma-ray spectrometry. These include consultancy work for the Geological Survey of France, Geological Survey of Norway, Anglo American Corporation, the South African Geophysical Association, and the Iranian Geophysical Society. He has also represented Australia on two International Atomic Energy Agency consultancies – looking at the standardisation of acquisition, calibration and data processing procedures for gamma-ray spectrometry.

Petroleum stream

'4D Seismic Reservoir Monitoring'
Presented by David Lumley

Please contact Wendy Watkins or your local ASEG Branch for additional information.

Wendy Watkins
Continuing Education
continuingeducation@aseg.org.au



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Geophysics for natural disasters – Balkan cries for help!

Snezana Komatina^{1,4}, Milovan Urošević² and Koya Suto³

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³Terra Australis Geophysics Pty Ltd, Queensland, Australia

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Dear colleagues and friends

We are sure that you have been informed about tragedy in Serbia and Bosnia caused by torrential rainfall. Continuous, heavy rainfall, commencing on 13 May, has resulted in extensive flooding in Serbia, Bosnia and Herzegovina (BiH) and Croatia. Three months' worth of rain fell in only three days. In Serbia, more than 1.6 million people are affected by the floods (22% of the population). The most affected is Serbian capital Belgrade and surrounding towns. In BiH, an estimated 1.5 million people are affected (39% of the population)! In Croatia, 38 000 people are affected.

Heavily affected areas are shown in Figure 1. More than 120 000 households in Serbia are without electricity and more

than one million people do not have access to water in BiH. Relief efforts are being hampered by landslides, damaged infrastructure, broken telecommunications, blocked roads, blackouts and particularly in BiH shifting minefields. It is also likely to affect the provision of assistance, and the Government is warning against the use of alternative roads without prior clearance.

Hundreds of bridges have been damaged and 3500 km of roads need substantial repairs, key railway lines will be closed for at least a month. More than 500 000 children affected by the floods now live living in makeshift homes or on the streets.

Can geophysics and geophysicists help?

As of 22 May some 2610 landslides have been reported throughout affected regions of Serbia and BiH. The worst is that landslides have moved landmines (UXO) to unknown locations and swept away many of the warning signs around the minefields (UNISDR 19/05/2014). Understanding and predicting landslides is of key importance for reducing the global impact of natural disasters.

In general, landslides are complex geological forms or bodies. They are composed of layers of contrasting and/or gradational physical properties (Bogoslovsky and Ogilvy, 1977). Internal geometry, rock composition and strength may result in different landslide scenarios. It is therefore of a prime importance to investigate the internal structure of the landslides. The traditional methods of engineering geology need to be accomplished by geophysical investigations (Bogoslovsky and Ogilvy, 1977). DC electrical resistivity profiling could nicely reveal internal structure of a landslide (Jongmans and Garambis, 2007). More often electrical and seismic methods are jointly used to investigate internal geometry and estimate the slope stability. Such an example is found in Frasheri et al. (1998), where geological information where complemented by geophysical investigations. Primary geophysical objectives are to determine the thickness of the body and slip zone. Internal structure is also important (Jongmans and Garambois, 2007).

Ground geophysical methods are not limited to electrical and seismic applications. Time-lapse geophysical and temperature measurements are also used for monitoring the activity of landslides. Combinations of magnetic, electric and temperature measurements seem to be effective for that purpose (Bogoslovsky and Ogilvy, 1977).

However, in case of the latest landslide disasters in Serbia and BiH, the area affected is enormous and it may take many years for ground geophysical investigations to become effective on such scale. Modern airborne geophysical techniques such as SkyTEM offering a suite of geophysical measurements capable of delivering high resolution information may be required to cover large areas and help characterise landslides in a timely manner.

Currently it is of capital importance to delineate landslides containing UXO. The threat there is that some are composed of plastic and as such can enter the river systems and cause problems in surrounding countries. Both ground and airborne investigations are immediately required. Several key UXO groups have been identified providing exceptional expertise, most of them based on time-domain EM. A ground based expert

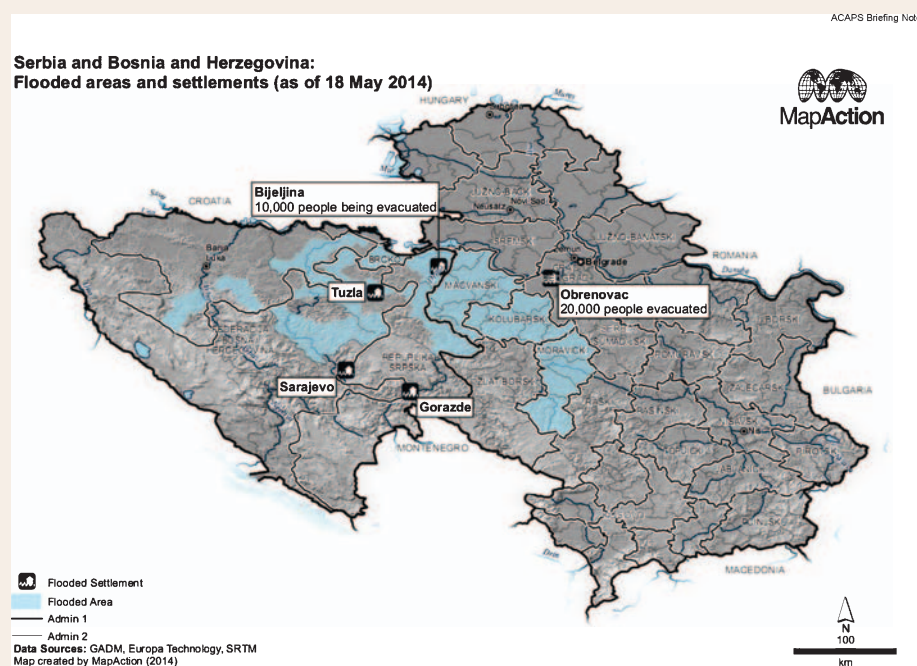


Fig. 1. Areas affected by flood across three Balkan countries. (Image courtesy: Assessment Capabilities Project - report from acaps, 19 May 2014, 'Floods in Serbia, Bosnia and Herzegovina; acaps briefing note'. Available at: <http://reliefweb.int/report/serbia/floods-serbia-bosnia-and-herzegovina-19-may-2014> [Accessed 28 May 2014])

group from Japan (Professor Sato of Tohoku University) is likely to be the first on the ground in Serbia and BiH. All geophysical societies including the two main SEG and EAGE are considering the ways of contributing. SEG's 'Geophysics Without Borders' project is one of them.

There is a long-term needs for the application of geophysics for characterising numerous and widespread landslides and monitoring their activity. Immediate action is needed for delineating UXO sites to prevent further human losses and spreading of the disaster to surrounding countries.

How can geophysicists and their societies help?

It is clear that geophysicists-volunteers could be recruited in numbers, much easier than the required financial structure necessary to support mobilisation of the equipment, transport of geophysicists and daily expenses related to investigations. This may be achieved primarily through the activities of our societies such as:

- The EAGE Presidents' charity dinner in Amsterdam – all participants to be

invited by the EAGE President to donate individual support or support of their society (if each Associated Society donates 100 EUR, there will be 6600 EUR).

- The same type of event could be organised during the SEG Annual Meeting (long-term help will be necessary).
- Research grants both short and long term.

Next, expert support is sought:

- Expert teams for UXO (companies).
- 'Geoscientists Without Borders'.
- Expert consultants and individuals.

Will anybody who can volunteer with their expertise please contact the AGES President, Snezana Komatina, komsne@yahoo.com. Individual donations may be made to the official account of the governments of Serbia and BiH in Australia below or to AGES (please contact Snezana Komatina for instructions).

References

Bogoslovsky, V. A., Ogilvy, and A. A., 1977, Geophysical methods for the

investigation of landslides, *Geophysics*, **42**, 562–571.

Fraseri, A, Ludvig Kapllani, L., and Dhima, F., 1998, Geophysical landslide investigation and prediction in the hydrotechnical works, *Journal of the Balkan Geophysical Society*, **3**, 38–43.

Jongmans, J., and Garambois, S., 2007, Geophysical investigation of landslides, A review, *Bulletin Société Géologique de France*, **178**, 101–112.

Donations

For those members who wish to give donations towards disaster relief, the Serbian government has opened a dedicated account with the Commonwealth Bank – donations into this account are tax deductible in Australia.

For additional information, or to make an online donation, please visit the 'Embassy of the Republic of Serbia, Canberra, Australia' website (www.canberra.mfa.gov.rs).

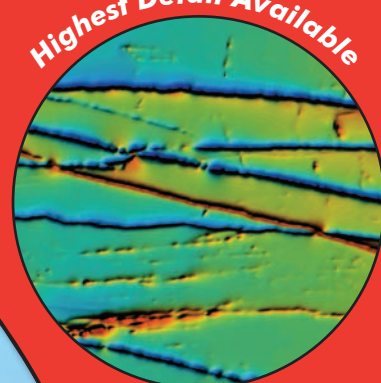
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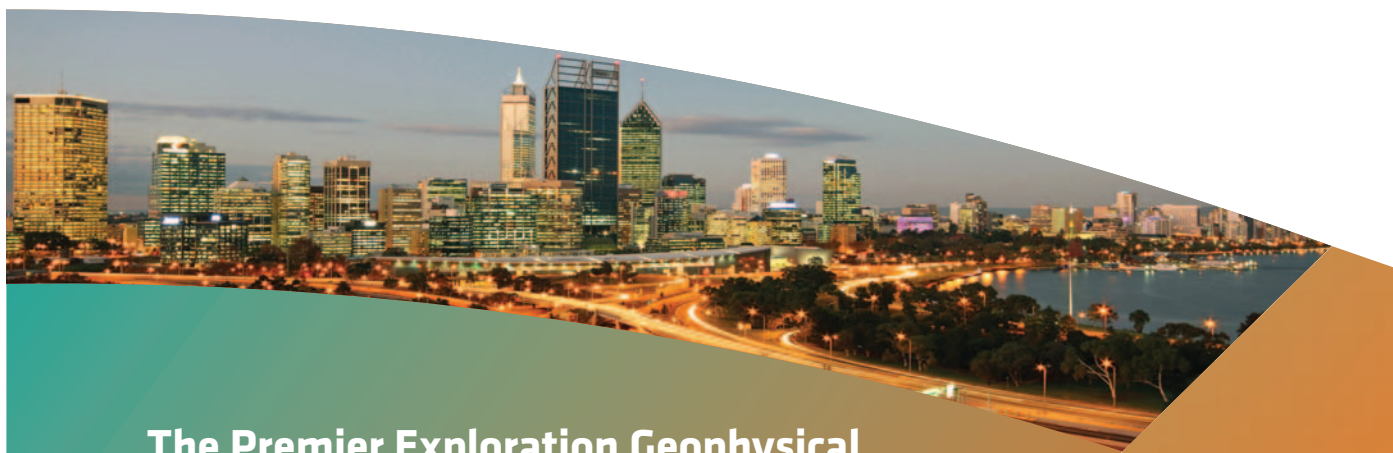





ASEG-PESA 2015

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15–18 February 2015 Perth, Western Australia



The Premier Exploration Geophysical Conference in the Southern Hemisphere

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The theme for the conference is “Geophysics and Geology together for Discovery”, invoking the fundamental tenets behind our shared efforts to discover and develop the natural resources needed for future generations. We are promoting a programme with a strong focus on case histories, best practice, and the new methods and technologies that underpin the exploration effort. We will celebrate the diversity and commonalities between minerals, petroleum, geothermal, geotechnical, and environmental geophysics.

Call for Abstract Titles OPEN

The call for extended abstracts will open on 1 June 2014 and close on 31 August 2014.

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www.conference.aseg.org.au

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20 - 24 October 2014

Presented by Professor Alan G. Jones



Australian Society of
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