Issue 57 | April 2023

Dear ASEG Members,

Hope you enjoyed your time at AEGC in Brisbane. In this issue, you will find

ASEG News

Geoscience news and events

Usual content:

ASEG Newsletter Editor Needed!

ASEG is currently seeking volunteers to edit the ASEG newsletter. As a volunteer, you will have the opportunity to learn new skills, access training opportunities, and gain experience in the not-for-profit sector.

Working with passionate and motivated volunteers who are enthusiastic about promoting and educating others about geophysics, you'll have the chance to make a meaningful impact. If you're interested in joining our team and contributing to the advancement of geophysics, we would love to hear from you!

Please send expressions of interest by **Friday, 17th April, 2023**

ASEG 2023/2024 Executives

ASEG is pleased to announce the 2023/2024 Executives:

President - Eric Battig
President-Elect – Janelle Simpson
Treasurer – Yvette Poudjom Djomani
Secretary - Asmita Mahanta

Immediate Past President – Emma Brand
Publications Chair – Steve Hearn
Webmaster / Vice President –Ian James
Technical Standards - Mark Duffett
Education Chair – Michelle Thomas
State Branch Liaison - Janelle Simpson
Membership Chair - Suzanne Haydon
Communications Chair – Mosayeb Khademi, Mikayla Sambrooks
International Affairs Chair – Randall Taylor
Professional Development Chair – Kate Brand

ASEG 2023 Honours & Awards

Please join us in congratulating these exceptionally deserving recipients!

ASEG GOLD Medal 2022: Phillip Schmidt

Grahame Sands Award: Andrew Duncan, Greg Street

Early Achievement Award: Janelle Simpson

Shanti Rajagopalan Memorial Award: Blair McKenzie

ASEG Service Medal: Kate Brand

ASEG Service Award: Tania Dhu, Ross Costelloe, Megan Nightingale

ASEG Honorary Membership: Ted Tyne, Andrew Mutton

2023 Richard Lane Scholarship Launch

Richard Lane (1962-2021)

The ASEG Richard Lane Scholarship has been established to support Geophysics Honours and Masters Students and to commemorate the life and work of ASEG Gold Medal recipient Richard Lane. The scholarship is open to all BSc (Hons) and MSc geophysics students at an Australian University and consists of a grant of $5,000 to the best ranked student for the current year. Ranking will be based on a 200-word discussion, overview of geophysics project and on academic transcript. We acknowledge and thank the ongoing donation and concept from Jayson Meyers and Resource Potentials Pty Ltd.

All Honours (BSc) and Masters (MSc) students with a focus predominantly in exploration geophysics are invited to apply. The closing date is **28th April 2023** and application details and form are here.

The scholarship is an annual event and donations to support the continuation of this scholarship are sought from institutions, companies and individuals. Information on donations via the ASEG Research Foundation can be found here. Please mark donation specifically “Richard Lane Scholarship:”

AEGC Australasian Exploration Geoscience Conference | Brisbane 2023

Thank you for attending the 4th Australasian Exploration Geoscience Conference (AEGC) 2023! This time, there were 932 delegates, with over 230 oral presentations, 14 inspiring keynotes, and 40 impressive posters.

The photos are now available. Find yours here!

The extended abstracts are also online now. Please find them here.

AEGC 2023 Extended Abstracts

AEGC 2021 Extended Abstracts

You are also invited to join AEGC2024 in Perth! We look forward to welcoming you to another fantastic gathering of geoscientists. Stay tuned for more information.

Leadership Scholarships for Women in the Mining and Resources Sector

Women & Leadership Australia is currently offering professional development scholarships for ASEG members. The scholarships are open to women across all areas of the resources and engineering sector, and we encourage you to share this opportunity with your members.

Women & Leadership Australia (WLA) supports women at all levels across all sectors and industries.

Through Industry Partnership Framework, hundreds of Australian associations and professional bodies work together to increase awareness and action around gender equity.

Scholarships of $1000-$5000 per person are available for women in the resources and engineering sector.

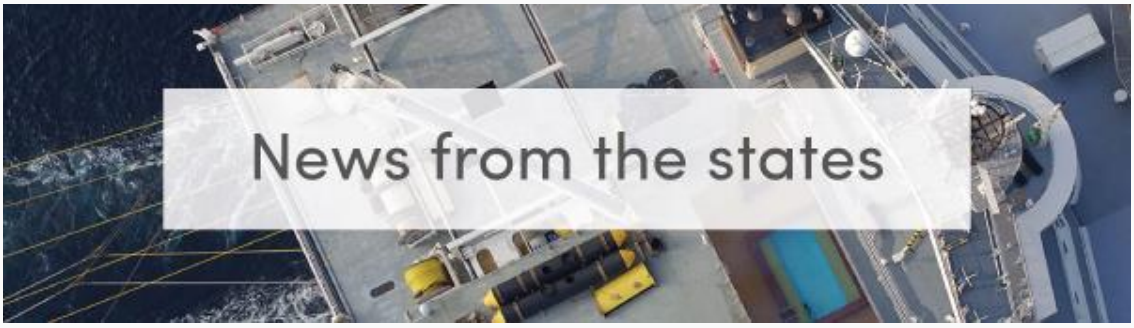
To encourage more women to increase their impact at work and step into leadership roles across the resources and engineering sector, WLA is offering scholarships for four leadership development courses. **Apply by 9 June** or find out more by clicking here.

Geoscience courses

17-22 April and 8-12 May, 2023

Online

CODES Fundamentals of Economic Geology



Upcoming events

Technical meetings, social gatherings and more..

ASEG WA

Mentoring Program - Applications now open

The Energy Industry Mentoring Program is a collaboration between nine professional associations in Western Australia: ASEG, Energy Club WA, Engineers Australia, PESA, PPDM, SPE, SUT, SEA and WiSE .

The program is exclusive and free for members. The duration of the program is 6 months (**May – October)**.

It's recommended that the mentor and mentee meet once a month and attend the induction and networking events:

19 May: Program induction for mentors and mentees (online).
25 May: Launch Event - Sundowner
31 August: Mid-program networking sundowner
26 October: Closing sundowner

To apply, click here.

ASEG SA/NT

Technical talk and AGM

5:30 pm for a 6:15 pm start, Wednesday 12th April

Thomas Cooper Room, Coopers Alehouse, 316 Pulteney St, Adelaide

Nick Jervis-Bardy

Using NMR to Characterize Aquifer Properties in In-Situ Mining: An Australian Uranium Case Study

Nick has 8 years of experience working as a geophysicist in mining and exploration. This

includes three years at Heathgate Resources where he specialised in Borehole Magnetic Resonance (BMR) logging, processing, QAQC, and database management. He provided geophysical and technical support to wireline logging, geology, hydrogeology, resource analysis, and production planning departments. Nick is currently working in a half business development and half technical role for **Orica: Digital Solutions** supporting BMR rental customers and consulting projects.
(Members & students free, non-members $10, includes finger food & drinks)

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SA/NT ASEG Branch Members interested in joining the SA/NT branch committee (President, Treasurer, Secretary, General Committee), please email Paul Soeffky before **12th April**.

Recent webinars

Dr Ted Tyne

ASEG History of Members

Gerrit Olivier

Fleet Space Technologies

Using real-time seismic nodes to explore the Earth, Moon & Mars

Derecke Palmer

UNSW

Is there a seismic refraction signature for sulphide mineralisation?

Michinori Asaka

INPEX

A predictive anisotropic rock physics model of shale and its practical applications

Berta Vilacís

Ludwig-Maximillians-Universität München (LMU Munich)

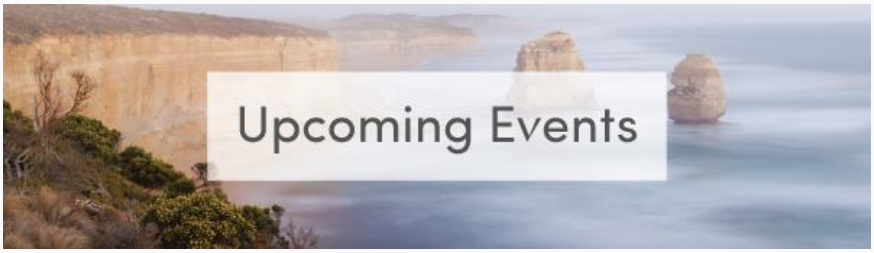
Evidence for active upper mantle flow in the Atlantic and IndoAustralian realms since the Upper Jurassic from hiatus maps and spreading rate changes

Maria Constanza Manassero

Macquarie University,

Including 3D Magnetotelluric Data into Joint Probabilistic Inversions for Imaging the Deep Earth

View more previous webinars



23-28 April 2023

EGU General Assembly, Vienna, Austria

26-29 June 2023

World Mining Congress 2023, Brisbane

25-27 July 2023

6th International Archean Symposium plus Target 2023, Fremantle, Perth

27 August - 02 September 2023

International Meeting for Applied Geoscience & Energy (IMAGE), Houston, USA

4-8 September 2023

8th International Airborne Electromagnetics Workshop (AEM 2023), Fitzroy Island, Australia

17-20 October 2023

Seventh International Conference on Engineering Geophysics (ICEG), Abu Dhabi, UAE.

View all upcoming events

Members receive free access to *Exploration Geophysics* by logging into the ASEG website and navigating to Professional >Publications >*Exploration Geophysics*

Hi all Exploration Geophysics readers,
For those who attended the AEGC, I trust it was a good conference. Issue 2 came out in March, please cast your eyes over the papers to see what catches your fancy.

There were six articles published on-line early in March. The first paper was by **Li et al** on enhanced detectability for marine CSEM data in shallow waters.

The second paper was by **Ren et al** on concurrent elastic inversion of Rayleigh and body waves.

The third paper was by **Saha and Dey** on assessing the combined analysis of ERT and MASW for ground improvement assessment.

The fourth paper was by **Ohta at al** on a multi-capacitance electric relaxation model for complex electrical conductivity of sulphide ores.

The fifth paper was by **Yu et al** on processing for ocean-bottom multicomponent data with seismic interferometry.

The sixth paper is by **Bottari et al** on GPR investigations of an archeology site near Etna, Italy.

Cheers

Dr Mark Lackie

Editor-in-Charge *Exploration Geophysics*
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A reminder that the February issue of *Preview* is available online.

This issue of *Preview* features the Australasian Exploration Geoscience Conference (AEGC) 2023 handbook. It also contains updates from all of the Australian State and Territory geological surveys, including the latest updates on geophysical surveys planned or in progress.
In other news and commentary, David Denham (*Canberra observed*) takes a look at the performance of Australian resource companies in 2022. In addition, he points to opportunities for researchers in the new $15 billion National Reconstruction Fund. Marina Pervukhina (*Education matters*) interviews Dr Nikolai Kinaev, the Lead of the Hydrogen Systems Future Science Platform in CSIRO. Nikolai has had a very “modern” career in the sense that he has constantly changed career direction, and he has some very sage advice for young players. Mike Hatch (*Environmental geophysics*) had a close look at what was on offer on AEGC 2023, and he made his picks. Terry Harvey (*Mineral geophysics*) muses on how exploration geophysicists can use problems that they encounter in the field to their advantage. Mick Micenko (*Seismic window*) gets technical about the location of Australia’s first oil well. Tim Keeping, Kim Frankcombe and David Pratt (*Data trends*) consider how ASX reporting of geophysics could be improved, an article I would urge all company personnel to read, and Ian James (*Webwaves*) has a bit of fun with ChatGPT.
The next issue of *Preview* is in production and will be published in April 2023. This will be the post-conference issue. Contributions to future issues should be submitted by email to the editor.

Enjoy!

Lisa Worrall

Preview Editor

PreviewEditor@aseg.org.au

All of our member spotlights are listed on our website. Please have a read, they're illuminating!

In this issue, we will continue featuring our keynote speakers, Adrian McCallum and Victorien Paumard. You can read it from the ASEG member spotlight site and AEGC 2023 keynote speaker page.

Adrian McCallum

[AEGC 2023]

1. Do you want to share some interesting stories behind what you will present in AEGC 2023?

I'm still deliberating on how I can best add value for the audience at AEGC 2023, but I expect that I'll tell a few tales of my remote-area geophysical research, pose some forthcoming problems and seek perspectives on collaborative ways to address those problems…

2. Is this your first in-person conference since covid? What are your expectations for this conference?

I was fortunate to attend a Cone Penetration Testing (CPT) conference in Bologna, Italy last year, so I'm very pleased to be back conferencing, face to face. I'm looking forward to meeting and engaging with new people, and learning of some techniques and contacts that may be able to assist me in my future expeditionary work.

[General questions]

3. For how long have you been a geoscientist/geophysicist? What do you enjoy most about being a geophysicist?

I've only been a 'real' geoscientist since I completed my PhD at the Scott Polar Research Institute in 2012, but I've been playing with radars since the mid 90s, in my time as a RAAF Navigator / RAN helicopter Observer. What I enjoy most (perhaps like many) is being in the field…

4. What is a challenge you have overcome and how did you do so?

Great question. One challenge that I'm still grappling with, is the transition from Defence to academia. I've been out of Defence for 15 years now, but old habits die hard; they're two very different worlds and cultures, and there are many things that continue to frustrate me. But, I'm learning, slowly…

5. What is your most memorable field trip experience? (e.g., best field meal? Your best sunrise/sunset location? Funniest or worst field memory?).

My most memorable field trip (generally) was a two-month ski expedition from the North Pole to Greenland, doing science. It was a great trip; I'll touch upon this at the conference. Another experience was a breakfast of vodka and herring with Polish collaborators at 0400 one morning in Svalbard, after a night of GPR, a breakfast that I haven't replicated since…

6. Do you have any presentation tips? This may help our presenters at AEGC 2023

Another great question; if only! An old RAAF mate posts regularly on Linked-In, and he would say practice, practice, practice (amongst other tips; see: https://www.linkedin.com/in/chrishuet/). But, I know my material pretty well, so as long as I know the gist of what I want to get across, I tend to keep it light-hearted and conversational; we'll see how we go…

7. What is a challenge that you recognise the geoscience community faces today, and how do you see us overcoming it??

Mmm, I would say development and retention of expertise. I'm no expert, but with geoscience schools/faculties etc. closing, at least in Australia, it would seem that we could be facing a personnel-crisis in years to come. How to overcome it? Salaries will only get you so far; in a post-Covid world, people want flexibility in their employment, so we need to enable this. This is a challenge that Defence, and particularly Navy, has been trying to address, for many years. Also, probably ensuring our technical literacy, so that we can most-efficiently utilise AI etc. into the future. This again is development and retention of technical expertise…

8. How can geoscience communities such as AIG, PESA, ASEG etc, better communicate how their fields can benefit the wider community?

Great question; I've seen more (expensive) televisions ads from mining companies recently, highlighting their sustainability, remediative-prowess etc. So, this may be a mechanism. But it more broadly begs the question: how can any entity, whether a business, institution, political party etc. communicate most effectively with society… Perhaps keep up to date with contemporary social media platforms, TikTok
etc. (but what's next?) to get most bang for your buck; or politically, court media personnel/organisations to maximise the potential for positive and more-regular exposure, across all media; this would require a bit of strategic thinking, to fund, implement etc.…

9. Given the opportunity to receive extra mentoring, would you choose to be mentored in your chosen career, technical science or how to communicate the benefits of exploration geoscience to wider community?

The opportunity to be mentored across all of those aspects would be valuable. To my students, I generally suggest that communication is key; it may open doors that other technical skills may not. So if I was doing the mentoring, I would be stressing communication and associated skills…

10. Do you think AI will take over your job or will the human element remain vital to exploration successes?

I confess that I'm not keeping up with AI data interpretation etc., so I think there is great potential for change, particularly in data processing/analysis. But, whilst I love the idea of autonomous GPR-drones doing run-of-the-mill surveying, I think there'll still be a need for the human element, particularly in challenging and remote environments; or, perhaps this is where we should most seek to effectively use automation etc.? I think that the human element will remain essential in a supervisory-capacity (perhaps remotely), in both monitoring surveys and quality-checking data and analyses…

Victorien Paumard

[AEGC 2023]

1. Do you want to share some interesting stories behind what you will present in AEGC 2023?

The presentation will focus on Quantitative Seismic Stratigraphy (QSS), which is an innovative way to visualize and characterize subsurface data. I am particularly attached to this theme because this is something I started to develop during my PhD with my supervisor, which then led to the creation of a research consortium called QSS that was supported by several industry sponsors over the last 4 years. It is very nice for me to see how a small idea at the start led to this big-scale project where I had the privilege to work with some brilliant students and amazing data on various case studies.

2. Is this your first in-person conference since covid? What are your expectations for this conference?

I actually had the opportunity to go in France last year to give a talk at an international conference. But in the case of AEGC, I look forward to touching base again with the australiasian community and discuss with my peers on more “local” themes that are relevant to Australasia. I am also very excited to see the different talks and learn more about what is happening in the region.

[General questions]

3. For how long have you been a geoscientist/geophysicist? What do you enjoy most about being a geophysicist?

I have been a geoscientist for the last 10 years. I graduated in 2013 with a MSc in Petroleum Geosciences in France and came to Australia to do my PhD. Since 2018, I am a Research Fellow specialising in Basin Analysis and Seismic Stratigraphy. Being in academia, what I enjoy the most is the opportunity to work on different scientific questions and explore what subsurface data have to offer. In Australia, most of the 3D seismic data is open file, which gives me the opportunity to work on different basins, geological intervals, depositional settings… and simply have fun investigating and communicating about this research! Those data are also fantastic tools for learning, and I really enjoy teaching the students through the lens of 3D seismic because it gives a unique 3D perspective on depositional systems in the geological record.

4. What is a challenge you have overcome and how did you do so?

The biggest challenge was during COVID, when I had to teach online to students located in different countries. I am teaching Seismic Stratigraphy, and usually, I have students in a room and we interpret together seismic lines on paper. But during COVID, I had to fully change my approach and use other tools to be able to do this online. We used a series of online tutorials and videos, as well as extra sessions for them to ask questions. Students were great and understood the situation, everyone was in the same boat, so we all had to adapt!

5. What is your most memorable field trip experience? (e.g., best field meal? Your best sunrise/sunset location? Funniest or worst field memory?)

I have so many memories from the field work I conducted in Australia, hard to choose! But the one that comes to mind is an “only in Australia” type of memory. I was doing some drone acquisition on an island located in the Exmouth Gulf. It was pretty hot that day and the sand was burning my feet. I decided to go knee-deep in the water with the remote controller, facing the beach and watching the drone flying. At some point, for whatever reason, I decide to turn around and I see, 5 meters away from me, the dorsal fin of a shark sneaking in behind me. I run out of the water and I shout at the skipper who stands on his boat and identifies the shark as a 2 meter long Hammerhead. This is when I realised I need to think a bit more of the local fauna on the field…

6. Do you have any presentation tips? This may help our presenters at AEGC 2023.

Avoid too much text really on the slides. A good figure or image is worth a thousand words! On my slides, I am a big fan of having figures that can communicate a clear takeaway message and below, I often write one short sentence stating the big learning. It helps the audience to focus on what the speaker is saying instead of reading tons of text.

7. What is a challenge that you recognise the geoscience community faces today, and how do you see us overcoming it?

The biggest challenge in my view is: how do we clearly communicate the importance of geoscience to the wider community. The world is changing and everyone agrees we need to embrace the energy transition towards a more sustainable world. But this transition still needs resources and solutions that involve geoscientists. For instance, we cannot have electric cars or renewables energies without the mining industry. Yet, there are many people who don't understand why. To overcome this, we need to show to the wider community how these resources are part of our everyday life and in parallel, how we try to conduct activities less impactful on the environment. We can take the same example with the energy industry, where there is a significant effort to offset carbon emissions by developing new technologies for subsurface carbon storage. Being in the university sector, I can see this as a clear challenge because we need to show students that they can find jobs as geoscientists and that they will play a key role in the energy transition.

8. How can geoscience communities such as AIG, PESA, ASEG etc, better communicate how their fields can benefit the wider community?

Particularly with regards to the previous question, I think we need to have more outreach events open to the public, where these communities can convene a panel of experts on specific themes and there is a debate following questions. I think it would also be important to communicate about the role of geoscience directly in high schools.

9. Do you think AI will take over your job or will the human element remain vital to exploration successes?

Human will remain a vital element. My view is that semi-automated approaches and AI should be seen as tools to assist geoscientists in their interpretation and exploration workflows, but not as the endgame. For instance, for 3D seismic data interpretation, we have now access to tools allowing geoscientists to interpret semi-automatically entire volumes of data in a relatively short timeframe. But instead of thinking that the job is done, it actually gives the geoscientist more time to think and analyse the results, which in the end leads to more robust models.