Lisa Worrall

As promised, this is a bumper issue of *Preview*. It is also an issue that is unashamedly focused on research students. We invited all students who completed research projects in geophysics at an Australian university in 2014 to submit their title, abstract and short bio for publication in *Preview*. Forty-four students from 10 universities responded – a good indication of the strength of the discipline. The topics addressed by the students were diverse and I can almost guarantee that there will be something to pique the interest of every reader!

One student of geophysics, Jack Muir (Honours, ANU), has distinguished himself by winning the prestigious John Monash scholarship to study science in the United States of America. The scholarship, which is worth $180 000 over 3 years, allows Jack to choose the university he would like to attend in the USA. His options include notable schools such as the California Institute of Technology, Princeton University and Harvard University. Jack's achievement caught the attention of the media http://www.abc.net.au/news/2014-11-29/canberra-student-wins-scholarship-to-study-science-in-us/5928200 and has raised the profile of geophysics in Canberra.

In this issue we also celebrate the 25th anniversary of the establishment of the ASEG Research Foundation. This foundation, which was the brainchild of Bob Smith, has supported the work of many students. We take a close look at the career trajectory of a sample of those students, many of whom will be an inspiration to those of you who are just starting out.

There are, of course, a number of other treats in store, most particularly Don Emerson's article on the history of the lodestone. Don notes that the ancients believed that ingestion of small quantities of lodestone restored one's youth in the manner of 'vipers wine'. According to Don, vipers wine is a ghastly decoction brewed from vipers, aloes and balsam – amongst other things. Methinks that lodestone pills would preferable. Don Emerson has promised to follow this article with another on the history of lapis lazuli and to say something about the petro physical properties of this historically rare and precious commodity. I understand that he is already out and about obtaining samples so lock up those illuminated manuscripts!

The next issue of *Preview* will include the ASEG–PESA 2015 conference handbook and will appear in your conference satchel. The Perth conference promises to be a marvellous outing for all geophysicists. The ASEG Publications team will be there in force – in the hopeful expectation of garnering exciting copy – and we look forward to receiving your feedback on both *Preview* and *Exploration Geophysics*. In the interim, the Publications team wishes you a safe and happy festive season.

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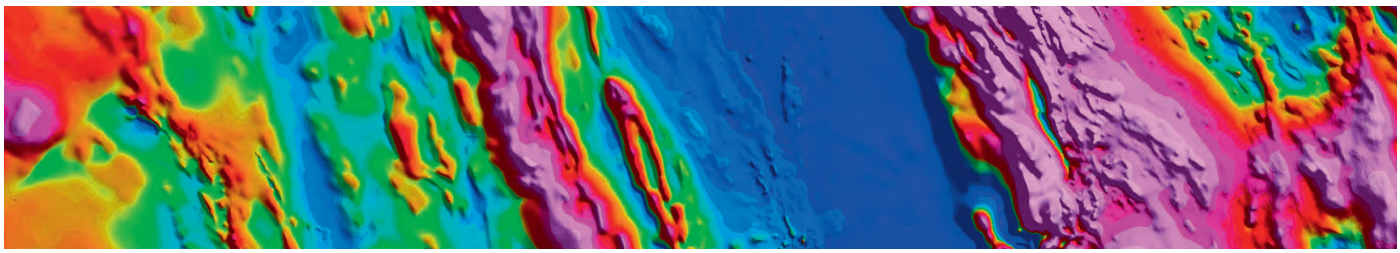

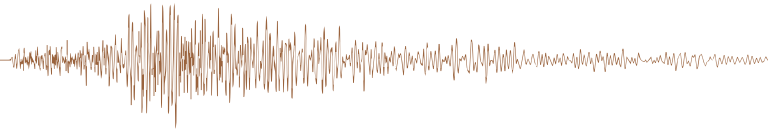

Letter to the Editor

Hi Lisa

I read the current issue of *Preview* (**172**) with interest, and noted in your editorial a lamentation that 'the CSIRO team of geophysicists has largely been disbanded'. Given that it was a comment made in the context of government sponsored research and development, it could be taken that CSIRO has given away geophysics as an active area of research. Nothing could be further from the truth, and it would be remiss of us not to counter such perspectives.

In fact you only have to look at recent material presented in the previous issue of *Preview* **171**, **'**Understanding magnetism in the Giles Complex, Musgrave Block, SA' by James Austin, Dean Hillan, Phil Schmidt and Clive Foss, to get a flavour for some of the research we are engaged in. The Magnetics and Gravity Research Team undertakes studies to advance the use of magnetic field data in mineral exploration and development programs and have been very active in that area in the past 5 years. These studies span theoretical advances (for instance in magnetic moment analysis and self-demagnetisation), development of new technology (down-hole tensor magnetic gradiometry), and creation of software (for instance linked, web-delivered Australian databases of magnetic field anomalies due to remanent magnetisation, rock magnetic properties and palaeomagnetic studies). The research group, which includes geophysicists in the Mineral Resources and Manufacturing Flagships, cooperates internationally to target research problems, provides solutions and training to industry, government and academic geoscientists, and also undertakes sponsored research selected to ensure our relevance to the exploration industry. Their work is internationally recognised, and combines young researchers with more experienced ones.

Elsewhere CSIRO continues an active research program in minerals geophysics with some innovative work being undertaken in the above mentioned Flagships on borehole geophysical methods. CSIRO has been active in this area for several decades, with some of that work delivering into the research agenda of the DETCRC (including the development of a gamma neutron activation tool, which provides in situ 'assays' of some key elements in rocks surrounding the drillhole). In the manufacturing sector, CSIRO has continued an active research agenda having developed and delivered LandTEM (SQUID-based TEM systems) in collaboration with industry, in work led by Cathy Foley and Keith Leslie. Subsequent developments involving that group include the down-hole tensor magnetic gradiometry technologies mentioned above.

In the EM and seismic space CSIRO has more than eight geophysicists working on a range of problems linked to CO_2 sequestration, geothermal, oil and gas reservoirs, and coal mine characterisation, inversion, NMR and EM for aquifer and groundwater characterisation, regolith and geological mapping etc. A key focus for their research agenda is exploration through cover. I haven't mentioned that CSIRO also houses one of the foremost geomechanics and rock physics laboratories in the world, led by Ben Clennell and Dave Dewhurst. The Petrophysics laboratory facilities are used to determine and interpret the physical properties of rocks to enable the characterisation of the production performance of petroleum reservoirs.

Geophysics is alive and well in CSIRO and the 'team' of geophysicists is growing, not disbanding. We at CSIRO consider geophysics as a priority area for future R&D and as a collective we are very optimistic about contributing significantly to the technology developments and applications across a range of areas, just as many would expect of an organisation such as ours.

I will finish by making comment on Greg Street's assertion, made in the same issue of *Preview*, that 'Cost cutting at CSIRO has left so few geophysicists, one wonders if they can be really effective in research. This situation is compounded by cost recovery which forces CSIRO to compete for projects with the private sector'. As a collective we regard this, at best, as being ignorant of the realities and, at worse, disingenuous. CSIRO has a large contingent of geophysicists, sure not as many as we would like, but we believe we are being ***very effective*** in our research. I would go further and venture to suggest that as an organisation we are blessed with probably one of the largest contingents of scientists in this disciplinary area in Australia. As regards the comment on 'cost recovery' – again I suggest such comments are naive. Our cost base is well in excess of many consultants, one reason why we cannot compete when jobs go to tender. We are not 'forced to compete' because if we did, we'd be bankrupt tomorrow. CSIRO has a range of skill sets available for research. It is by doing the research well and demonstrating this that we attract support from external agencies and industry. It is really that simple.

Best regards

Tim

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