Environmental geophysics

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Conference highlights

Welcome readers to this month's column on geophysics applied to the environment. In this issue I have a quick look at the upcoming ASEG-PESA-AIG Conference being held in Adelaide in August. I'm on the organising committee and have been heavily involved in the programme of talks and posters –and am excited about what we have to offer.

As you have probably read elsewhere in this (conference) edition of *Preview*, there will be something like 160 talks and 40 posters to go see at the conference– of which 17 talks and 13 posters have been officially designated as Near Surface/ Engineering geophysics – not a bad showing. It is worth mentioning here that our approach when organising the programme for this conference was a bit different than that for previous conferences, at least for the minerals side of the conference (but this spilled over into both the energy side of the conference as well as the near-surface side). Our goal was to get contributors to make their work fit the exploration themes spelled out in the UNCOVER initiative. UNCOVER (http://www.uncoverminerals.org.au/) is interesting in that it is designed to help focus exploration in Australia. By grouping talks into less traditional boxes we (the organisers) hoped to influence how explorers think about their targets and maybe improve their chances for success. This also means that some papers that would otherwise have been grouped into Near Surface/Engineering Geophysics may be over in, for example, a session titled: Minerals – Characterising Cover.

I've had the pleasure of helping organise the program and now, looking through it as it is being prepared for publication, I would say that there is a fascinating range of papers for all of us to enjoy, and I find it difficult to limit myself to the near surface realm in which I usually work. What follows is a very brief description of a few papers that struck me – there are so many that I have missed…

I am quite curious about some of the new techniques that are being highlighted (even introduced) at this conference. For me passive seismic is all new – and I am happy to say that there will be an entire session dedicated to the subject on Monday, including a keynote by Nick Smith from PassiveX. While waxing about things seismic-ish (and away from my interest in things more electric/ electromagnetic), Mike Haederle and his co-authors describe an innovative exploration method that combines single source and receiver refractive seismic with gravity as a first pass exploration tool to get depth to basement, applied to iron ore exploration. I wonder if this type of approach can be used for other targets and problems.

I am finding much of what is happening in MT quite interesting these days, with amazing progress being made imaging fluid movement and changes in permeability at depth using magnetotellurics – don't miss Graham Heinson's keynote on this, along with other results presented by his cohort of students, and other MT practitioners. I am hoping that some of what his group is doing will one day be translated closer to the surface using, perhaps, multiple electrical transmitter sources, etc.

To me some of the most amazing advances in near-surface geophysics are in the imaging of AEM data. The level of detail that can be seen from images made from AEM data is getting better and better. There are a lot of talks showing AEM results – see for example some of the talks put up by Ken Lawrie's group at Geoscience Australia.

Again, this is just a brief taste of what is on the programme. Hoping to see you in Adelaide!!!