

Minerals geophysics



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I don't get fashion

I don't get fashion (I don't get some aspects of art, either, but that's a different story). Why spend \$2000 on a big name hand-bag, or \$20000 on an exclusive wrist watch, when similar equally functional alternatives can be had for a fraction of the price? Are we defined by how much we spend on ourselves? Fashion features in weekend newspaper magazines and some advertisements in airline in-flight magazines suggest that we are!

In contrast to this desire for exclusivity, the latest fad can have many in the population scrambling to purchase a particular must-have item, or subscribing to a particular in-vogue belief. What has happened to independent thought?

Our industry is also influenced by fashion. Publicity for the development of new geophysical instrumentation or refinements to a geophysical technique can excite company interest and increase management pressure to use them. Exploration success with a particular geophysical technique can spark a flurry of copy-cat activity. Needless to say, not all of this usage will be appropriate to the target or to the conditions prevailing in the search area. Here are a couple of Australian examples.

In electromagnetics the arrival of the time domain MPPO-1 in Australia in the early 1970s (see Brian Spies' article in *Preview* 187) and the subsequent development of SIROTEM in the 1970s and 1980s (see Roger Henderson's article in *Preview* 172) were game changers for electrical geophysical exploration in Australia. Prior to this, IP-resistivity usage had dominated over frequency domain electromagnetics, which had been developed for exploration

in the more resistive environments in the Northern Hemisphere. Time domain electromagnetics (TEM) proved to be much better suited to the typical Australian conditions of thick conductive weathering and high telluric noise. Such was SIROTEM's impact that well into the 1990s TEM was often the method of choice, even where targets and environments were not necessarily suited to electromagnetic exploration. The use of IP-resistivity declined substantially, in some cases to the detriment of exploration efficacy.

In 2006 sub-audio magnetics (SAM) was used with much-publicised success by CuDECO Ltd. at their Rocklands Project in the Cloncurry area. Understandably there was an upsurge of interest in SAM by other explorers in the area. SAM clearly highlighted known ore zones in this environment of shallow cover and enhanced weathering of structurally controlled sulphide mineralisation (see EQMMR image Figure 1). But, would it be appropriate to consider using SAM where there were substantial thicknesses of conductive cover, or where the target bodies themselves were not conductive?

Our conferences play a part too. During a conference there can be heightened interest in new instrumentation developments, or a particular geophysical

technique will receive prominence in presentations, posters, booths and workshops. In 2016 there was a buzz about passive seismics, and in 2015 there was the ADROK session – that certainly sparked a lot of interest. Recent conferences have raised the profiles of helicopter EM, 3D IP-resistivity, magneto-tellurics and seismic reflection techniques in mineral exploration.

Of course exploration companies, geophysical instrument manufacturers, geophysical contractors, government organisations and academics must be able to publicise their successes and developments. How else are we to be kept informed, improve our technical prowess, and advance as an industry? It's up to us as geophysicists to assess each technique on its suitability for the target and its environment and to recommend accordingly, whether it is fashionable or not. Inappropriate use of geophysical exploration techniques can waste resources, damage the reputation of the technique for future more appropriate exploration and, in a worse-case scenario, result in a missed target.

That's enough preaching. I'm off to do some shopping – our local electronics store is advertising a lap-top with rose gold highlights to die for and I don't want to miss out!

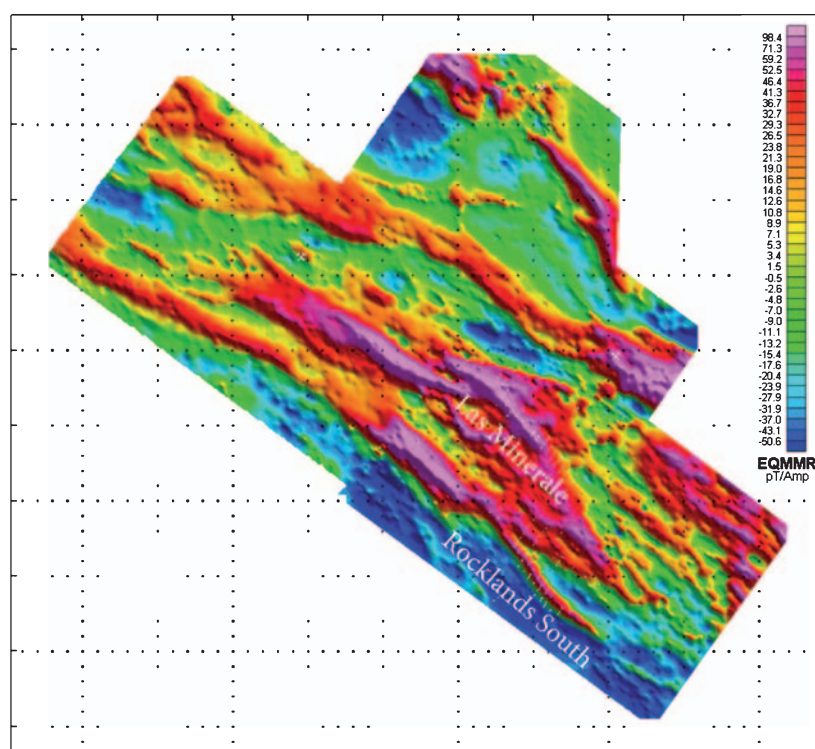


Figure 1. Rocklands Project SAM EQMMR (Equivalent Magnetometric Resistivity) image.