

New technologies for detecting and characterising mineral systems

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ABSTRACT

Cooperative Research Centres (CRC) are grants funded by the Commonwealth Australian Government's CRC Programme to support medium to long-term industry led collaborations to work on and tackle industry challenges and deliver tangible outcomes. The Deep Exploration Technologies CRC (DET CRC) was an 8-year long collaborative initiative between researchers and end-users, and was aimed to deliver research programs in more successful, cheaper and safer ways to drill, analyse and target mineral deposits. New exploration techniques need to be developed in response to decreasing ore discovery rate and increasing exploration challenges. The deposits that were exposed at the Earth's surface, have been mostly discovered, and we are now facing a challenge of exploring in deeply-buried environments. The deliverables of the DET CRC were technologies for more efficient and cheaper drilling to obtain samples, as well as for rapid and cost-effective analyses for informed decisions. These technologies include coil-tubing (CT) drilling, down hole tools (e.g., total count natural gamma) and top-of-hole sensing technologies (e.g., Lab-at-Rig[®]), capable of collecting data while drilling or short time after drilling. These technologies now enable us to communicate and analyse exploration results in real time and map mineral systems. Recently launched Mineral Exploration Cooperative Research Centre (MinEx CRC) is a new 10-year long collaborative research initiative that has three goals: delivering more productive, safer and environmentally friendly drilling methods (including CT drilling) to discover and drill-out deposits; developing new technologies for collecting data while drilling; and delivering a national Drilling Initiative (NDI) to undertake drilling and collect vital data in under-explored areas of potential mineral wealth in Australia. This talk aims to discuss recently developed technologies within the DET CRC and how they aid the collection of data to map and understand mineral systems, as well as how they can be integrated into more effective mineral exploration.