

Prospecting for gold just got a lot easier

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Looking for gold? Every good explorer knows there's no silver bullet in finding an ore deposit, but a University of South Australia researcher is hoping to change all that.

Dr. Caroline Tiddy, a senior research fellow in UniSA's Future Industries Institute, has developed a suite of geochemical tools to more accurately target valuable mineral deposits and save drilling companies millions of dollars in the process.

The tools use data collected from analysing drilling materials in new ways to help locate undiscovered precious metals buried by younger sediment and identify the right drill holes.

"The [global demand](#) for copper and gold is growing, but it is getting increasingly hard to find these metals as companies are forced to drill deeper and deeper, costing them significant amounts of money," Dr. Tiddy says.

"Diamond drilling, for example, costs up to \$400 a metre and it is not uncommon to drill to depths of one to two kilometres. That amounts to an \$800,000 bill with no guarantee of success, so it limits the number of drill holes. To add to the challenge, [ore deposits](#) are tiny compared to the search space. It's a real life, global problem of looking for a needle in a haystack."

Dr. Tiddy's goal is to develop new technologies for faster, cheaper and more environmentally-friendly drilling.

By mapping out where key chemical elements are found in greater concentrations, Dr. Tiddy is creating geochemical algorithms that increase the chances of finding an ore deposit and decrease the cost of mineral exploration.

Using the exploration tools developed by Dr. Tiddy, exploration companies stand to vastly increase the return on their investment.

The tools have been successfully tested at Prominent Hill, an iron oxide-

copper-gold deposit in the north of South Australia, increasing the footprint of their ore body fourfold. They have also been trialled in the Yorke Peninsula, highlighting unexplored areas of copper.

"South Australia has a reputation for its copper and gold deposits so these data-driven approaches to exploration are revealing important information about mineral [exploration](#) in the state.

"By using these geochemical tools, companies can better focus their [drilling](#) resources into lower risk areas. Finding an economically viable copper-enriched area has the potential to generate revenues of up to \$175 million a year as well as creating more than 500 jobs," she says.

Provided by University of South Australia

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