

Earth Sciences Colloquium Series

Presents

KEGS Foundation Scholarships Presentation and Lecture

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Date: Tuesday, January 17, 2023

Time: 1:30 PM

Location: BGS 1053

The economics of looking deep with geophysics - Why look deep when I'm only interested in the first XXXm?

The growing acceptance of the mineral systems approach to ore deposit generation and fertile areas in the near surface (the infamous "Hand of God" example of Olympic Dam) is forcing many companies to rethink how they conduct their exploration programs. However, often this approach is overridden by the economics of what can be brought into production the quickest and at the lowest cost, hence "I am only interested in an extractable resource that is within 200m or 300m of the surface". A resource, if of sufficient size and grade, within 200 to 300m of surface is essentially considered to be open pitable and hence can often be brought into production in a short timeframe. As a result, in many mining camps the majority of the geophysical exploration that has been completed is restricted to at best 200m or 300m of surface. An understanding of the overall mineralising system is therefore absent and the possibility of higher grade resource at greater depth is unknown.

In this discussion the advantages of conducting a potentially deeper looking geophysical program early on in the exploration of a project is examined from both scientific and economic viewpoints, even if the original scope is to look shallow for resources. The advantages of applying deeper looking geophysical methodologies early in an exploration will be discussed with a view to the advantages, limitations and overall exploration cost. This is a topic that is not addressed in most academic programs. Often the prospect of looking deeper is not considered outside of some well known mining camps (Sudbury, Athabasca Basin, Witwatersrand Basin, etc.). However the quest for additional resources to support increased demand for many minerals is requiring deeper exploration under cover. Examples of the benefit of looking deep early in exploration are provided with respect to fiscal optimization.



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