

Current trends in geophysical exploration for minerals

THORKILD MAACK RASMUSSEN¹

¹*Luleå University of Technology, SE-971 87, Luleå, Sweden*

Exploration for minerals is in general based on utilization of data and information from a broad range of geoscientific methods and techniques. Furthermore, exploration often builds on input and contributions from several stakeholders such as geological surveys, exploration companies, companies specialised in data acquisition and instrument development, consulting companies, universities etc. This presentation focuses on current trends in utilization of geophysical methods in mineral exploration.

In addition to providing an overview of new developments and emerging techniques, the presentation will include comments and views on how to improve efficiency in utilization and integration of various geophysical data sets. Efficiency in utilization of geophysical methods is to a large extent linked to the methodologies used for combining geophysical data with other observations such as geochemical, lithological and structural data and with auxiliary techniques such as data and model visualization systems. An important but very difficult task in exploration is the ability to provide a proper analysis of model uncertainties and prediction capabilities. Although theoretical foundations are available for the analyses, this task is often severely limited due to sparse data and insufficient information content of the data. Views on how to improve exploration efficiency are provided in the presentation.