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## Natural Source Audio Magneto-Tellurics (NSAMT): Case Studies over various structural and mineralized targets

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### ABSTRACT

Case histories using a Natural Source Audio Magneto-Telluric (NSAMT) method of profiling are presented in this paper. These case histories indicate how conductive, resistive and intermediate resistive/conductive targets can be detected at depth using NSAMT. The method is also shown to work in highlighting structural elements such folding and horst and graben tectonics. Success also has been achieved in detecting and providing thickness information about conductors underneath surficial conductive overburden or overlying conductors. NSAMT can also be used to locate deep steeply dipping conductors such as nickel sulphides, negating the use of the more costly Squid TEM. Additionally, NSAMT can be used as a deeper resistivity profiling technique to add to IP/Resistivity surveys, as is done by TITAN and MIMDAS.

The NSAMT method is based around the use of hardware and software from Zonge International. Data collection, processing and modelling costs are similar to Induced Polarization (IP) and Transient Electro-magnetics (TEM) making the NSAMT profiling method a very attractive option in mineral exploration. Costs are kept to a minimum by forgoing the use of a remote reference and using novel filtering and processing schemes. NSAMT is intrinsically safer than IP and TEM as there is no transmitter or high voltages involved, and also because fewer people and vehicles are needed. Smaller crews are needed to those mobilized when doing IP and TEM as there are no heavy cables necessary or big electrodes that need to be prepared. Fly in surveys are possible on short notice.



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