perfiles

...YOUR GEOPHYSICAL NEWSLETTER

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induced polarization – electrical resistivity – self-potential – magnetics – electromagnetics - seismics – well-logging
MINING – GROUNDWATER- ENGINEERING - ARCHAEOLOGY

CHEERS!

Welcome to the fourth edition of our periodic newsletter *Perfiles*. In the last few months we have had several discussions regarding applicability of the IP and Resistivity methods to exploration of deep mineralized targets, so we decided to dedicate this issue to the processing and interpretation of two dimensional geophysical data in difficult geological environments. Our experience in this type of targets spans over 30 years, so we are confident in our observations and applications. We invite you to participate on *Perfiles*, sending us your comments and questions, so that we may even discuss them in a future edition of this informative newsletter.

José R. Arce

SENSITIVITY

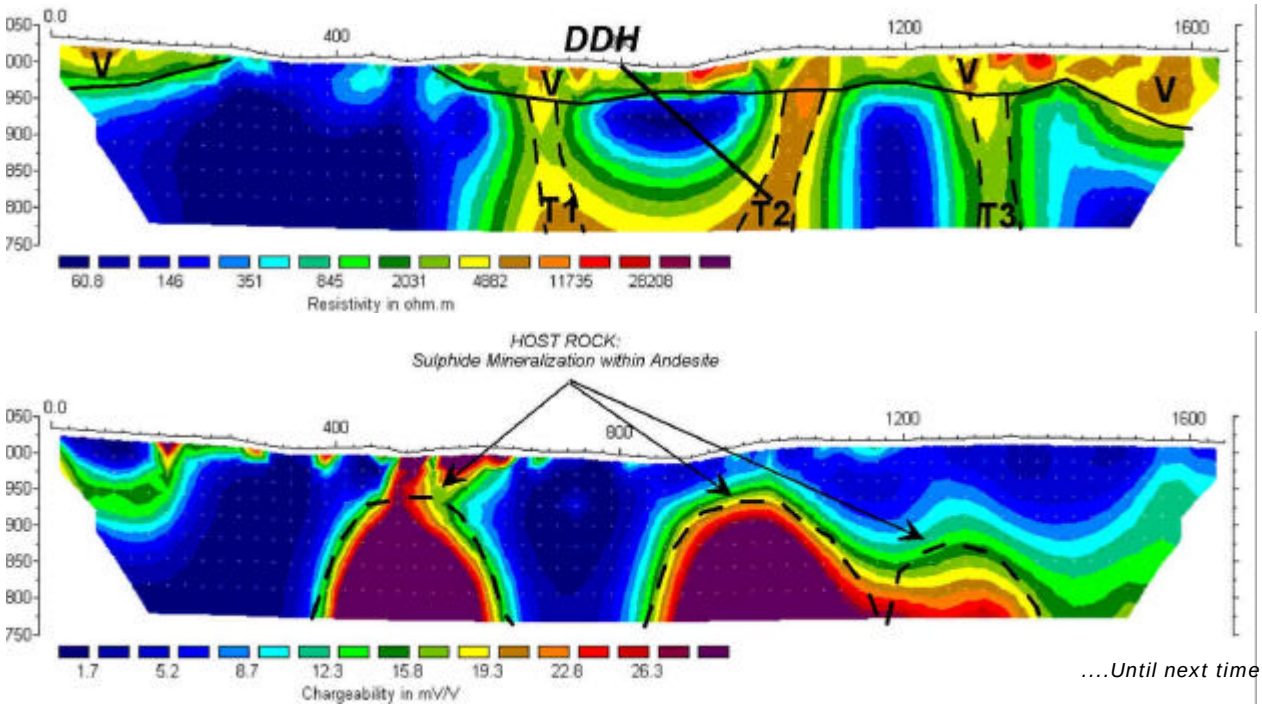
Over the last few years there have been many discussions regarding the use of the various electrode geometrical arrays in electrical methods. Theoretically the field geophysicist could implement any desired electrode combination, but there are physical considerations in field operation of these methods which greatly influence the decision over the use of a specific array, being the most significant consideration the natural contact resistance that the terrain offers to the pass of electrical currents. In Perú we find a wide range of contact resistance conditions, with areas were this property may be conditioned to become below 500 ohms, allowing for virtually any array configuration, but in many other zones it varies between 2000 and 10000 ohms or even higher. In the latter case, it is advisable to select an electrode array with high input signal, deep penetration and high lateral sensitivity.

The electrode arrays with the highest signal input are Wenner and Pole-Pole, which is the main reason we prefer them for a wider range of applications.

RESULTS

The electrical sections shown below are an actual example of 2D inversions of a Resistivity and Chargeability line. The first includes our interpretation of Resistivity ranges, with a cover of recent volcanics (V) and possible silicified structures (T1, T2, T3). Drillhole DDH confirmed the presence of target T2 with a great degree of precision at over 200 meters depth. The second section shows high-chargeability anomalies of these rocks hosting the silicified gold-bearing veins. It may be readily noted that sulphide mineralization occurs displaced from anomaly T1, while in targets T2 and T3 are coincidental.

The line displayed below penetrated some 280 meters with less than 500 Watts of maximum power in the field inductor due to high contact resistances, usually over 5 kilohms. Drilling presently continues to confirm targets T2 and T3.



....Until next time

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