perfiles ...YOUR GEOPHYSICAL NEWSLETTER

Published by: Arce Geofísicos, Lima-Perú **August 2008**

Induced polarization-resistivity–spontaneous potential–magnetometry–gravity-electromagnetics-seismics–well-logging
MINING – GROUNDWATER – ENGINEERING - ARCHAEOLOGY

CHEERS!

The XIII Latin-American Geological Congress / XIV Peruvian Geological Congress, events which will be held together from September 29 through October 3, will start soon. This new congress has surpassed our expectations in every aspect, and we expect it to be the largest geological congress that we have ever had in Perú. The technical program is solid and is available in the congress webpage (www.congresosgp.com). We expect to see you there.

In this new edition of *Perfiles*, we will present a new case history of 3D induced polarization. We introduced this method in Perú in 2002, and we have perfected its various stages over the years. This is the reason why we would like to give you a recent case history of 3D induced polarization in Perú.

José R. Arce

INSTRUMENTS

A reliable geophysical company requires instrumentation in optimal condition. Because these instruments are used in the field and in a variety of weather and altitude conditions, they tend to fail more often than standard domestic electronic equipment and appliances. *Arce Geofísicos* has permanent support from its sister company *Arce Electrónicos*, which takes care of maintenance, upgrades and repair of all our geophysical instruments. With this infrastructure, those instruments that rarely fail are repaired and usually returned to the field within 24 hours after they arrive to our shop in Lima. To complete this support, we keep a large stock of spare parts, and in some cases, complete backup instruments.

In July we received a fifth Iris VIP 4000 induced polarization transmitter, with 4Kw of power output. This new instrument will be solely destined as a backup unit, in case a similar instrument presents a malfunction that would take us more than one day to repair. We also have backup magnetometers, seismographs and IP receivers.

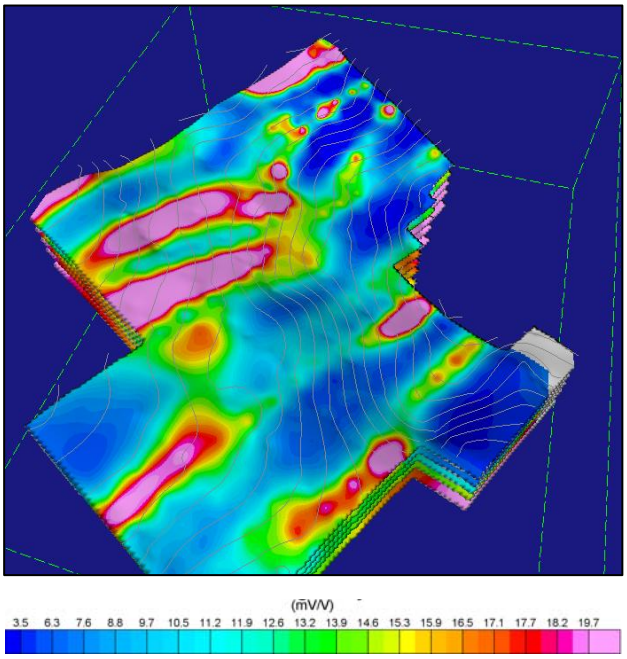
We must also mention that we do this support in Lima with knowledge and authorization from most geophysical equipment manufacturers: Iris, Scintrex, Zonge, Mount Sopris and Geometrics, among others.

INDUCED POLARIZATION IN 3D

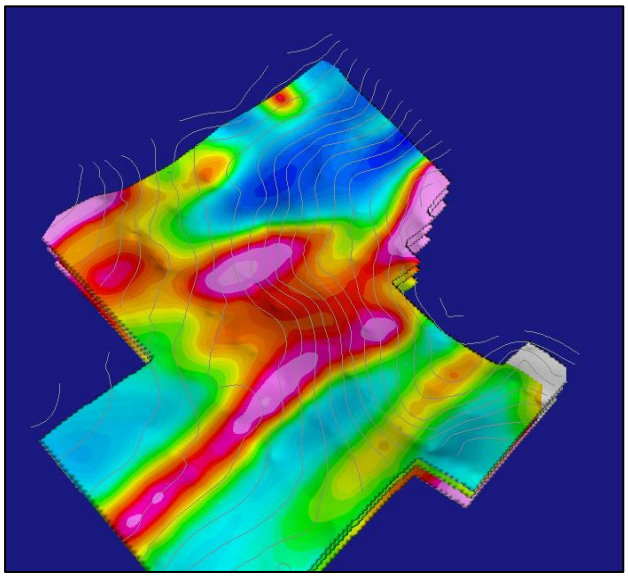
Since we first introduced the three-dimensional induced polarization technique in Perú, the method has had considerable improvements, which in turn have allowed us to optimize results.

The example we will show next will provide a chargeability signature of polymetallic veins, modeled with 3D IP at 50 and 150 meters below surface. From the area´s geological knowledge, we expect the thickness of these veins to range from one to four or five meters. Chargeability responses along these veins clearly show where prospective sulphide mineralization concentrations are located, and will allow programming of subsequent drilling.

The geophysical responses of mineralized veins are complicated to model and often have weak signatures. The anomalies that we see below show a clear Southwest-Northeast orientation and with chargeabilities up to 25 mV/V, in specific locations. Surface topography is shown as grey contour lines and this chargeability model corresponds to 50 meters depth. Up to five veins may be seen in this image.



The next 3D chargeability image represents the model results at 150 meters below the surface. Here there is a much nicer definition of one of the chargeable structures, as well as an improvement in the chargeability continuity of other veins.



Until next time...

Av. Petit Thouars 4380, Miraflores, Lima 18, Perú. T(51-1)4227205/2215406, F(51-1)4426946.
perfiles@geofisicos.com.pe http://www.geofisicos.com