perfiles

...YOUR GEOPHYSICAL NEWSLETTER

Published by: Arce Geofísicos, Lima-Perú **November 2006**

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

CHEERS!

We have commented on previous versions of *Perfiles,* the applicability and improvements of 3D modeling in Induced Polarization. Nowadays, we use 2D modeling only as a quality control technique for field data. Since 2002 we have completed a significant number of this type of survey and have presented the results on various congresses. One of our recent case histories is Mallay, where the initial drilling campaign has already been completed, as well as some underground workings that intersect the anomalies, and since it is a recent survey with proved results, we want to present this case in this last issue of *Perfiles* of 2006.

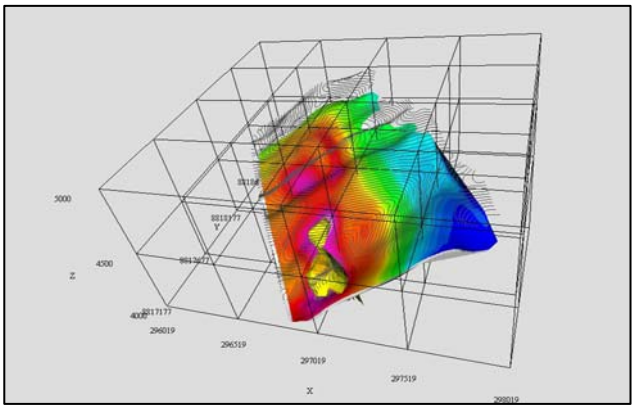
José R. Arce

INSTRUMENTS

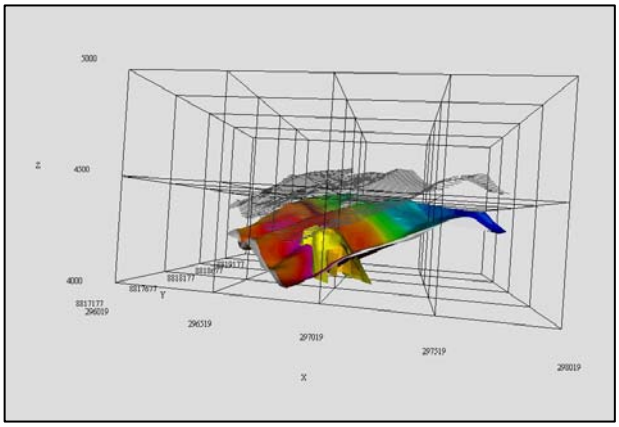
We would like to announce the arrival of our latest instrument: a Scintrex ENVI gradiometer. This unit arrived this month and increases our stock of magnetometers to four, for two simultaneous crews. This new unit has all the necessary accessories to operate as a rover, as a base station or as a gradiometer. In this last configuration it uses a second sensor and the instrument measures the difference in total field magnetic intensity between both sensors for a higher resolution at shallow depths, not even requiring base station diurnal corrections. Applications for gradiometers are basically shallow, which means it is also ideal for engineering and archaeology. With this new instrument we cad add a second crew for ground magnetometer surveys, as well as increase the range of applications of this method.

MALLAY – 3D INDUCED POLARIZATION

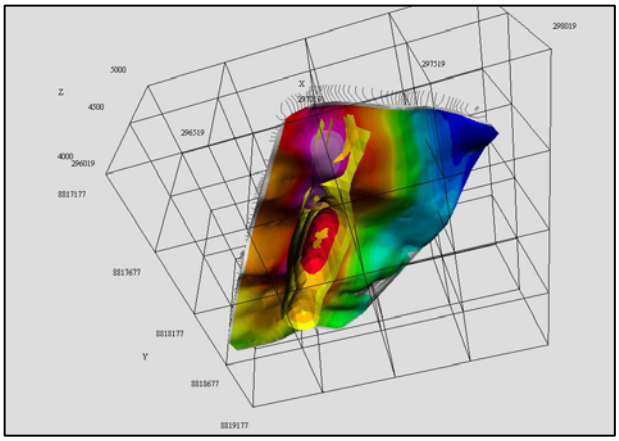
In June 2005 we completed a geophysical survey in the Mallay project, Oyón Province, Perú, for Compañía de Minas Buenaventura. This year the company has completed many drillholes and underground workings to target the anomalies, so we asked permission to use this information in the annual reunion of the Society of Exploration Geophysicists held this past October in New Orleans, as well as the *XIII Congreso Peruano de Geología.* This project is located in the contact between the Pariahuanca limestone formations and the Farrat quartzites, which have high and low Resistivities, respectively. In the image shown next we present the surface morphology as black contour lines overlaying a 2D map of 3D chargeability at 100m depth.



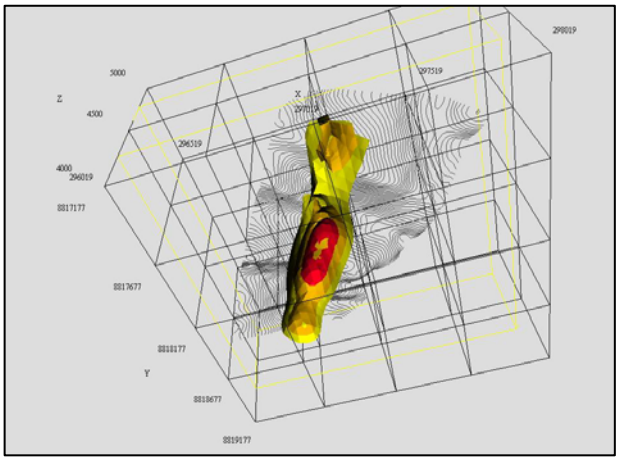
The next view shows the same results, but looking North. The yellow solid represents the chargeable mass with 50 mV/V.



The following image represents the three-dimensional chargeability anomaly, where the orange solid represents a response of 55 mV/V and the red is 60 mV/V.



The next view shows a much clearer image of the anomalous chargeability mass.



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