perfiles ...YOUR GEOPHYSICAL NEWSLETTER

Arce Geofísicos, Lima-Perú, Medellín-Colombia **August-November 2011**

induced polarization-resistivity–self potential–magnetics–gravity-radiometrics-electromagnetics-seismics–downhole
MINING – GROUNDWATER – ENGINEERING - ARCHAEOLOGY

CHEERS!

Welcome to our last edition of *Perfiles* of 2011. This was been a very busy year for us, which is the reason we have not been able to produce our usual four yearly editions of this newsletter, but only two.

Our Colombia branch has had quite an active year as well, with several exploration and engineering geophysics project, occupying up to five of our field crews simultaneously at one time. Arce Colombia was one of the sponsors of the XIV Latin American Geological Congress, and actively participated of the Mining Fair, both held during August in Medellín, Colombia.

José R. Arce

NEW INSTRUMENTS

We are getting ready to do a major upgrade in Canada to our Scintrex Navmag SM5 cesium-vapor magnetometers, to the latest generation of these types of instruments, the Scintrex Navmag CS, recently introduced in North America. The new instruments have improved reliability in their components, as well as greater stability in field readings. We expect to have them back by mid-February, 2012.

Scintrex ENVI CS

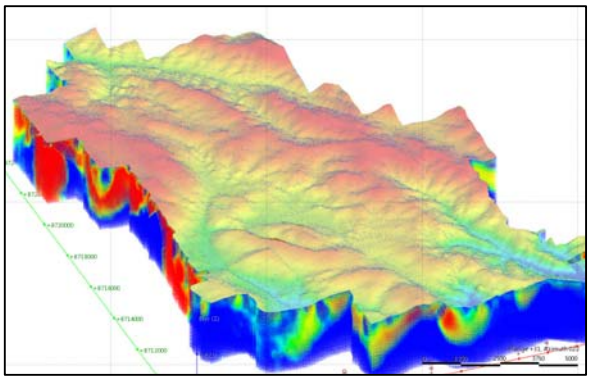
3D VISUALIZATION AND ANALYSIS OF GEOPHYSICAL INFORMATION

Geophysical methods have been extended to three dimensional space over the previous decade. With this new mathematical improvement, we have increased their reliability and precision, but they require, more than ever, a clear understanding of the measured signal and the results of all modeling processes.

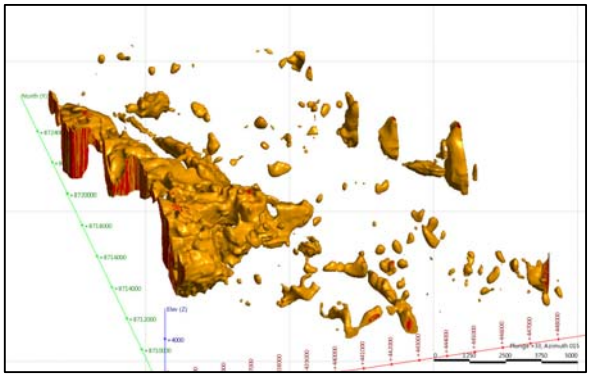
At present there are several powerful programs designed for 3D visualization and analysis of information. Back in 2004, we introduced the use of *Fracsis*, from *Fractal Technologies Inc.*, to geophysical applications. Over the last few years, *Aranz Ltd.* developed *Leapfrog*, a new 3D geological modeling software which utilizes a high-speed 3D interpolation through progression techniques. Considering the advantages offered by *Leapfrog*, we have acquired a license for this program and are currently delivering all our 3D results with this format.

In the following example, we present a 3D model obtained over an area in Central Perú, which was studied with approximately 820 line kilometers of cesium-vapor ground magnetometry.

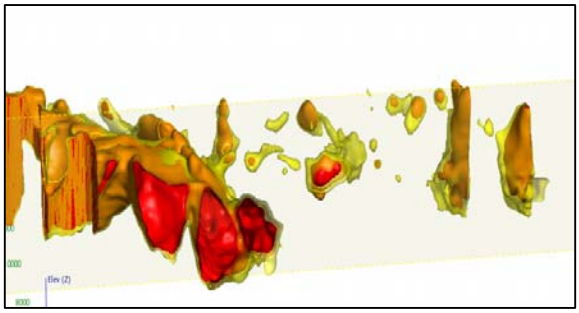
Under the topographic surface, lies the resulting block of magnetic susceptibilities, from the 3D modeling process, and down to some 2000 meters of depth. The red color represents some more than $1300x10^6$ SI units.



Once the information is imported, multiple isosurfaces of magnetic susceptibilities may be generated, as shown next, where orange represents $1400x10^6$ SI and red, $1600x10^6$ SI.



The resulting model is then delivered to our clients, so that they can view it using the *Leapfrog Viewer*, of free distribution, which can also be used to extract sections with any selected strike and dip, as shown below. With this shareware program, most visual properties of the elements in a database, such as transparencies, color, or simple hide and show options, may be readily controlled.



Until next time...

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