perfiles ...YOUR GEOPHYSICAL NEWSLETTER

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

CHEERS!

From September 29 to October 3 we had in Lima the XIII Latin-American Geological Congress / XIV Peruvian Geological Congress. The results of these joint congresses, which I had the honor to preside, were overwhelming and we were able to produce a geological event comparable to any geological international meeting. To begin we must thank the 30 companies that sponsored our congresses, which allowed us to obtain three times more financial support than the previous congress. Based on previous statistics, we had originally planned our congress for 1300 attendees, but the final number was close to 1830 for congress, courses and field trips. We also had the participation of eleven international institutions, from which we would like to mention the Society of Economic Geologists (SEG), the Society of Geology Applied to Mineral Deposits (SGA) and the Society of Exploration Geophysicists (SEG), whose deep involvement was most important in our technical program. I would like to thank many of our friends, who collaborated with our organizing committee, either with their extended abstracts, revisions or attendance.

Following the line of our last *Perfiles* from August 2008, we would like to show you a new example of three-dimensional induced polarization.

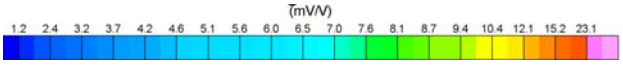
José R. Arce

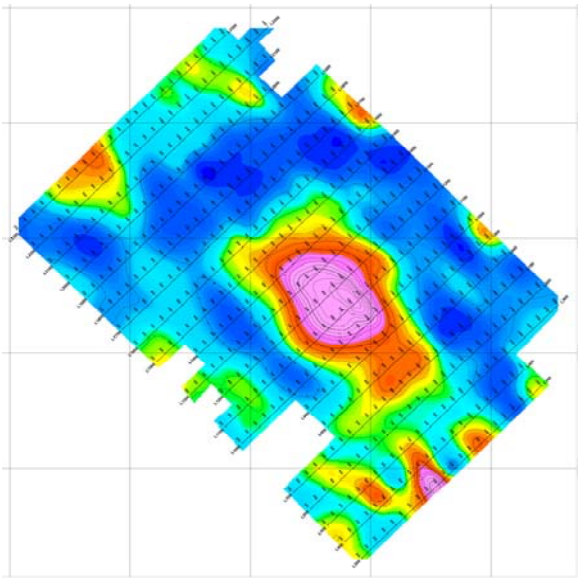
METHODS

During the recent Society of Exploration Geophysicsts (SEG) meeting, which was held during November in Las Vegas, we had the opportunity find out which will be the future improvements in the Multichannel Analysis of Surface Waves (MASW) method. We have been using continuously the MASW for the last few years to reliably measure and model the S-wave velocities in engineering applications. We will keep you informed through this newsletter of these improvements as they become available over the next few months.

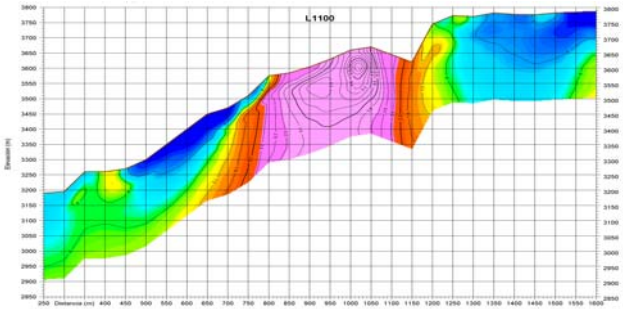
INDUCED POLARIZATION IN 3D

During the second half of this year, we completed a three-dimensional induced polarization survey in the mountains of La Libertad inPerú and over a geologic target consisting of a mineralized diatreme. The modeling was completed after approximately 7 hours and used the preliminary information collected over all SW-NE lines with the Pole-Pole array, a=50m and 7 penetrations, to obtain an effective modeling depth reach of 300 meters below the surface. The survey lines were separated by 100 meters and stations were measured every 50m along the lines, providing sufficient detail to model the mineralized target as well as some tabular structures apparently related to the central body. The first map shows the chargeability model at 100m depth. Here the central target of 800m by 400m represents the diatreme. We can also define structures with chargeable responses and with NW-SE orientations. Modeled chargeability responses varied between 1 and 45 mV/V and we used a threshold of 20 mV/V for the main exploration targets, displayed as magenta color anomalies.

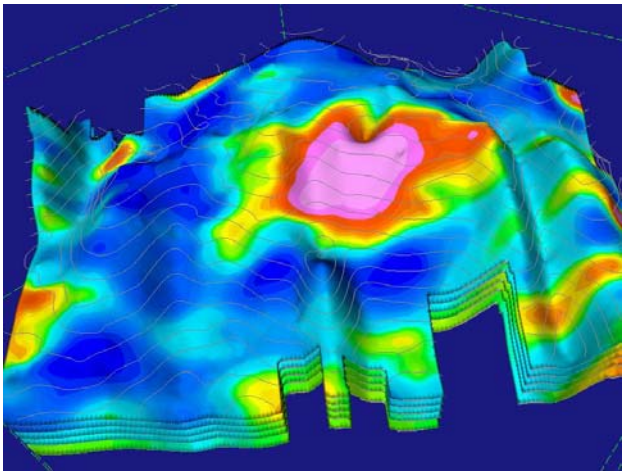




If we extract from the 3D model results, the chargeability information coincidental with line 1100, which is placed through the middle of the central target, we obtain the following image.



Finally, to visualize the results in three dimensional space, and with the addition of surface topography, we generated the next model.



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